

Bovine Papular Stomatitis

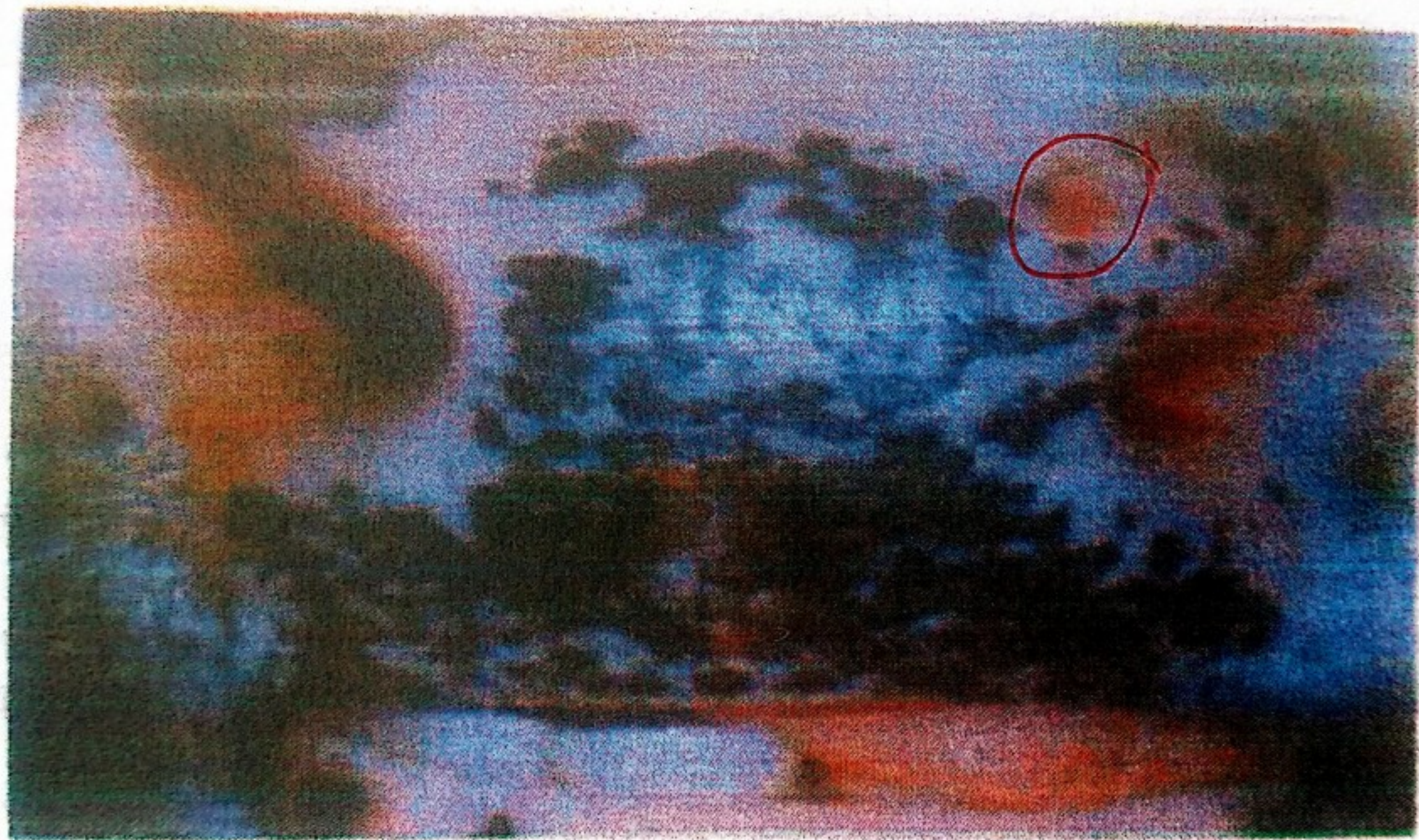
Muzzle **reddness**

Lips, mouth **stomatitis (vesicles, erosions)**

Oesophagus **vesicles, erosions**

Forestomach **vesicles, erosions**

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Bovine papular stomatitis
lesion on the muzzle



**Bovine papular stomatitis
lesion on the gums**



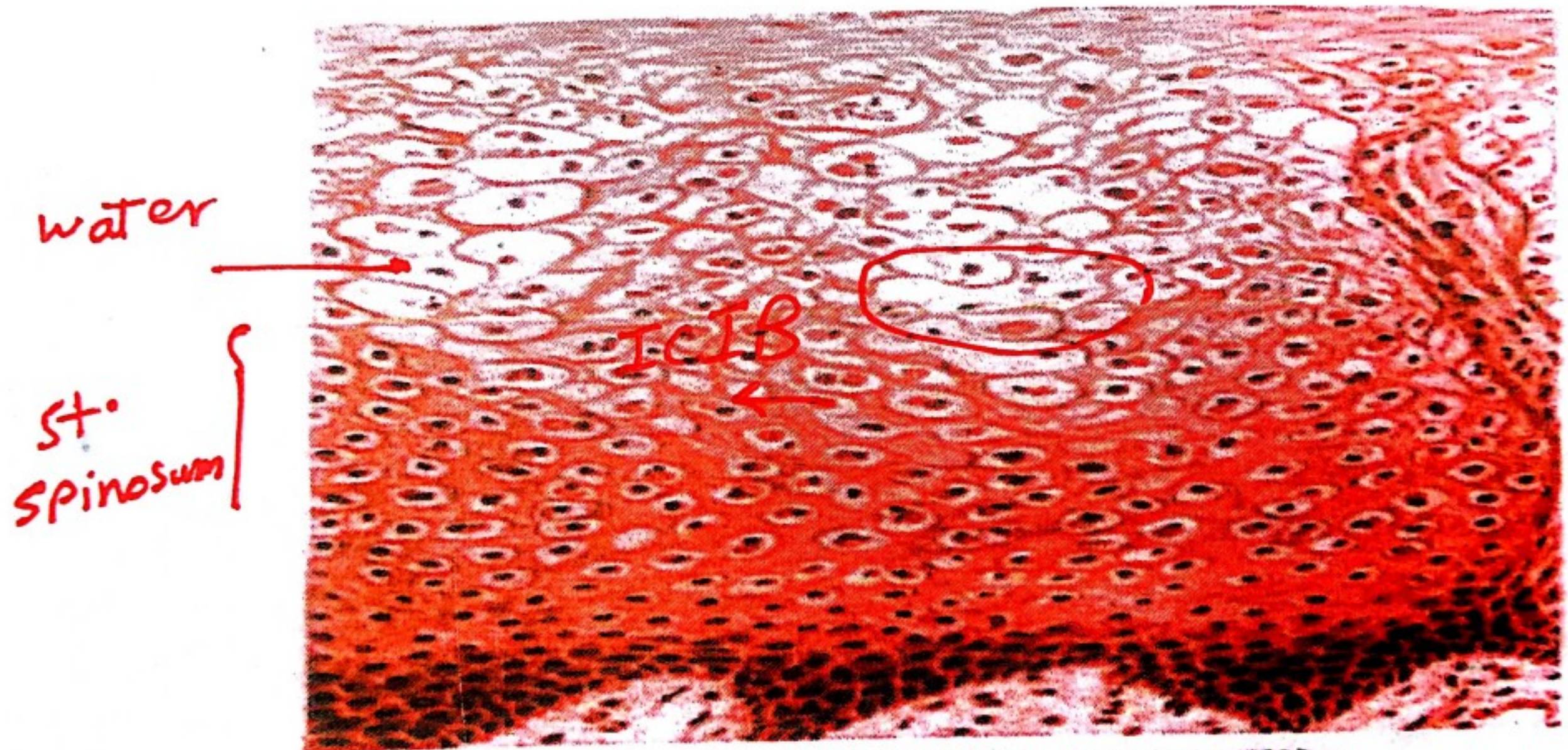
Bovine papular stomatitis
lesions on the dental pad and hard palate



water

st.
spinosum

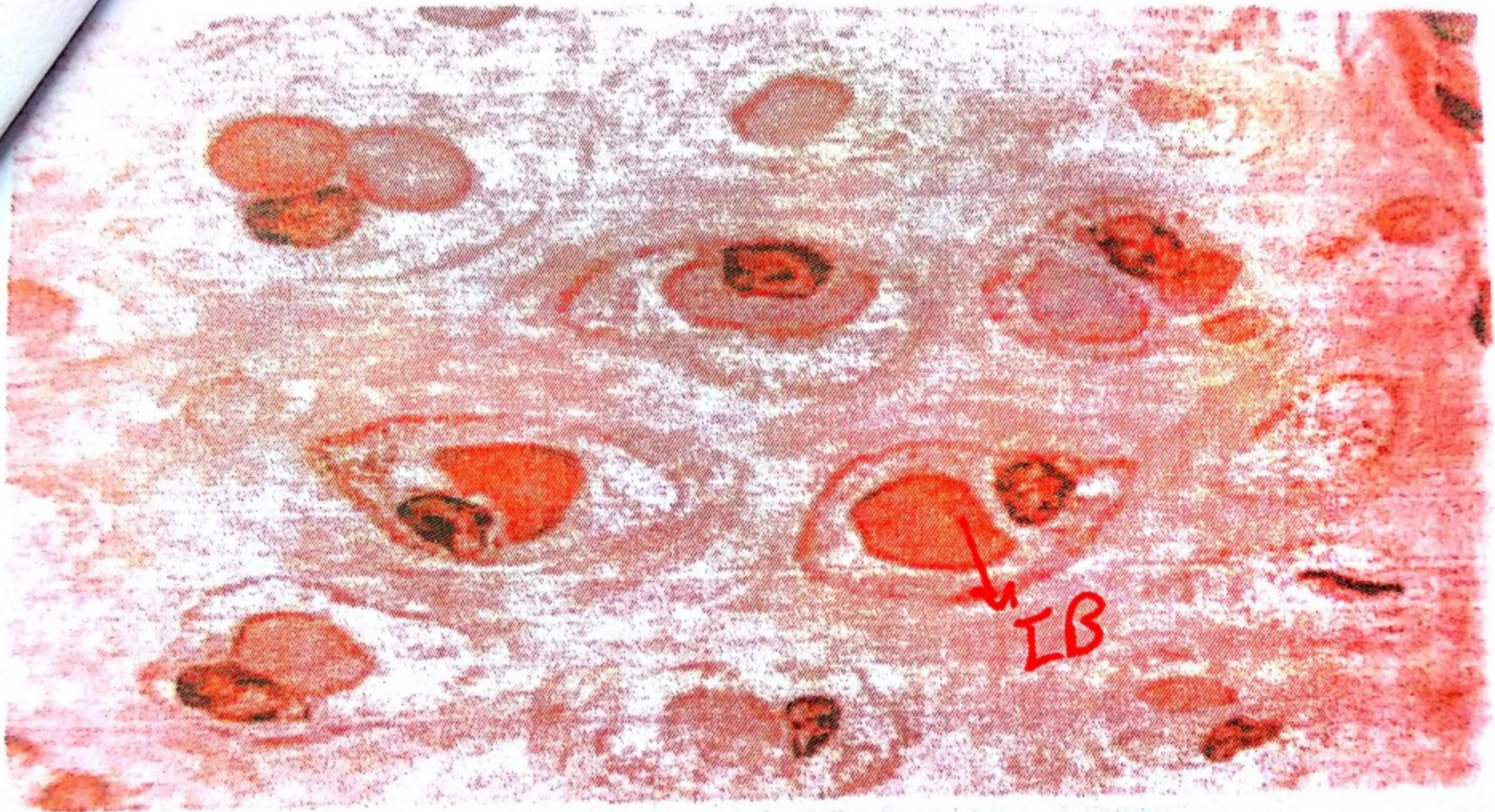
Bovine papular stomatitis
lesions on the dental pad



Bovine papular stomatitis

Lip : hydropic degeneration and swelling of cells in str. spinosum at the beginning of vesicle formation

inclusion bodies are seen intracytoplasmic



Bovine papular stomatitis
Intracytoplasmic inclusion bodies
in cells of str.spinosum of stratified
squamous epithelium of the lip

الطاعون البشري

Cattle plague Rinderpest

Tongue: **erosions/ulcers**

Mouth: **necrotic stomatitis (ulcers**

Oesophagus: **ulcers**

Forestomach: **ulcers**

Abomasum: **ulcers**

Small intestine: **ulcers, haemorrhagic enteritis**

Large intestine: **congestion / zebra stripings**

Urinary bladder: **ulcers**

Kidney: **congestion**

Eye: **conjunctivitis / corneal opacity**

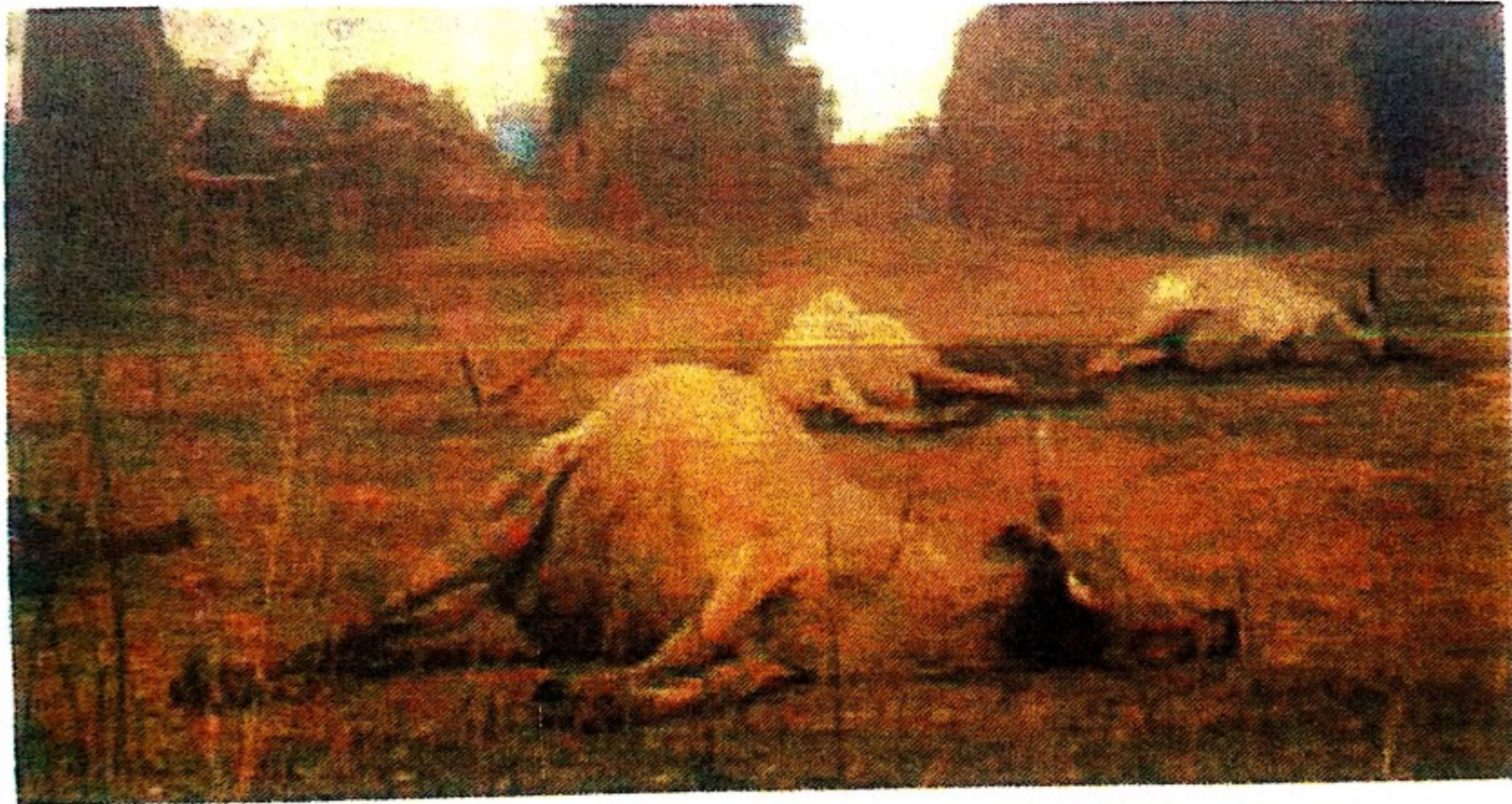
Spleen: **petechial haemorrhages subcapsular**

Lymph nodes: **shrinkage / necrotic changes**



Cattle plague (Rinderpest)

**It is a severe contagious disease in which mortality
may reach 100 %**

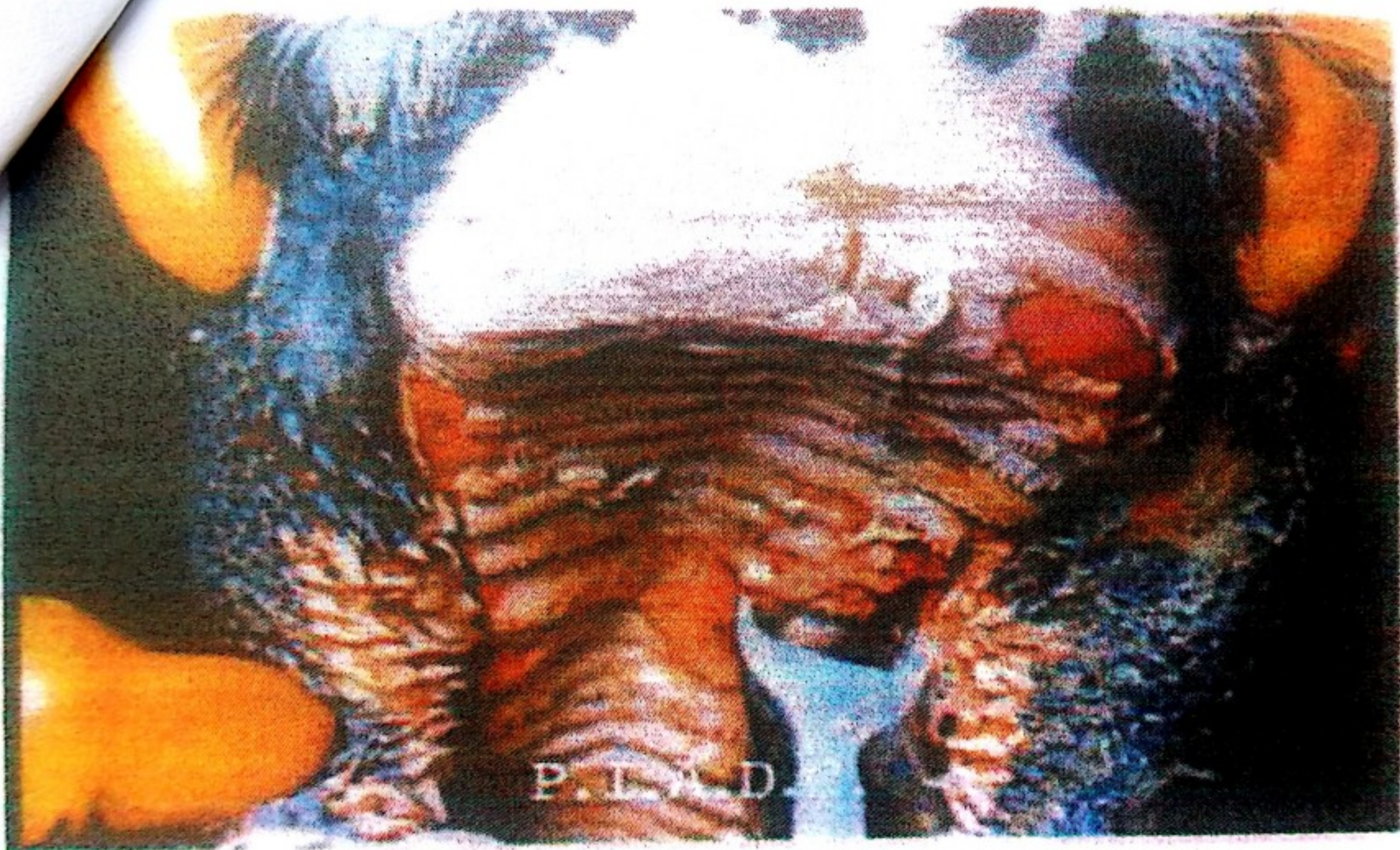


Cattle plague

mortality may reach 100 %

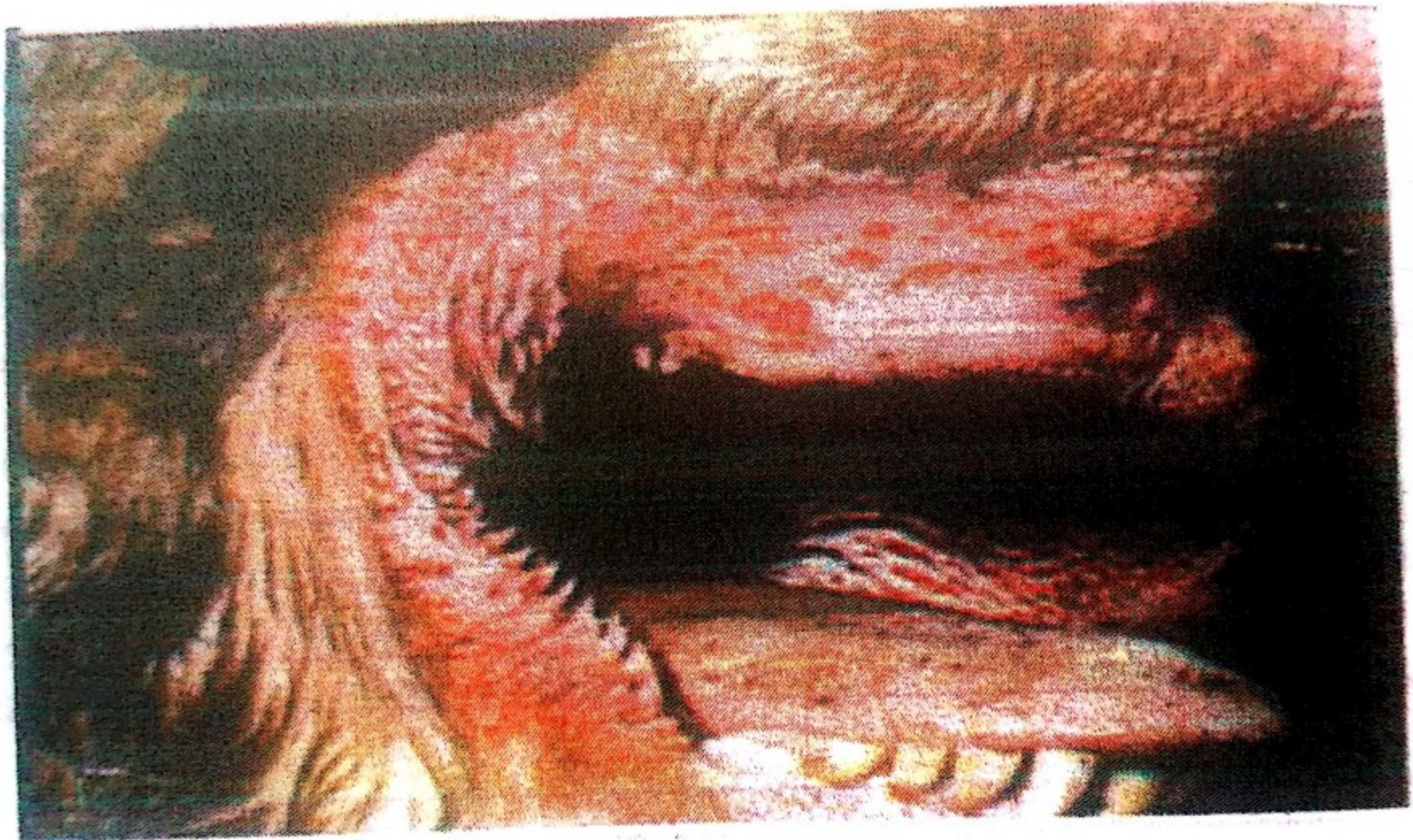


Cattle plague
increased lacrimation in an affected cow



Cattle plague
erosions on the dental pad and hard palate

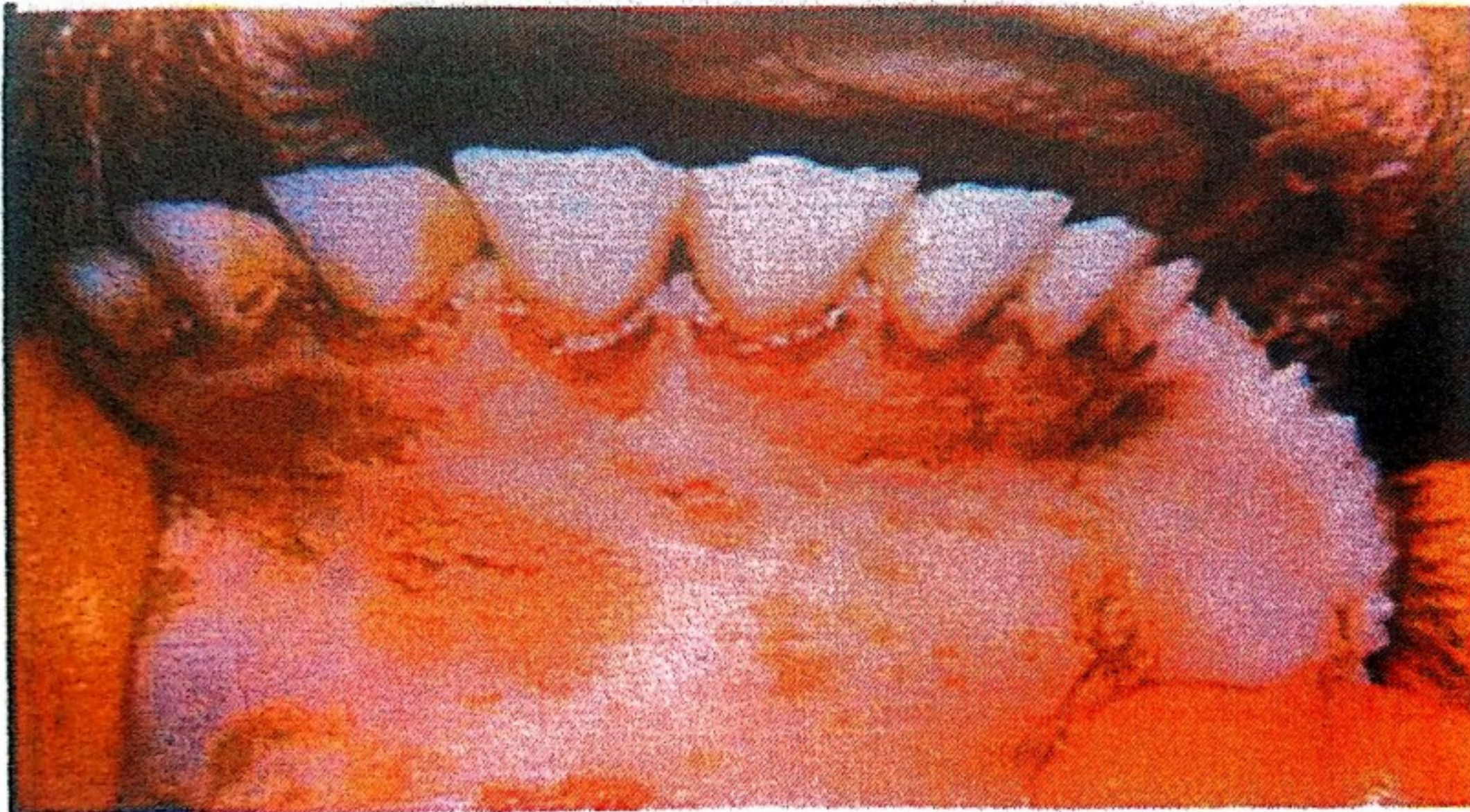




Cattle plague

erosions on the gums of an affected cow

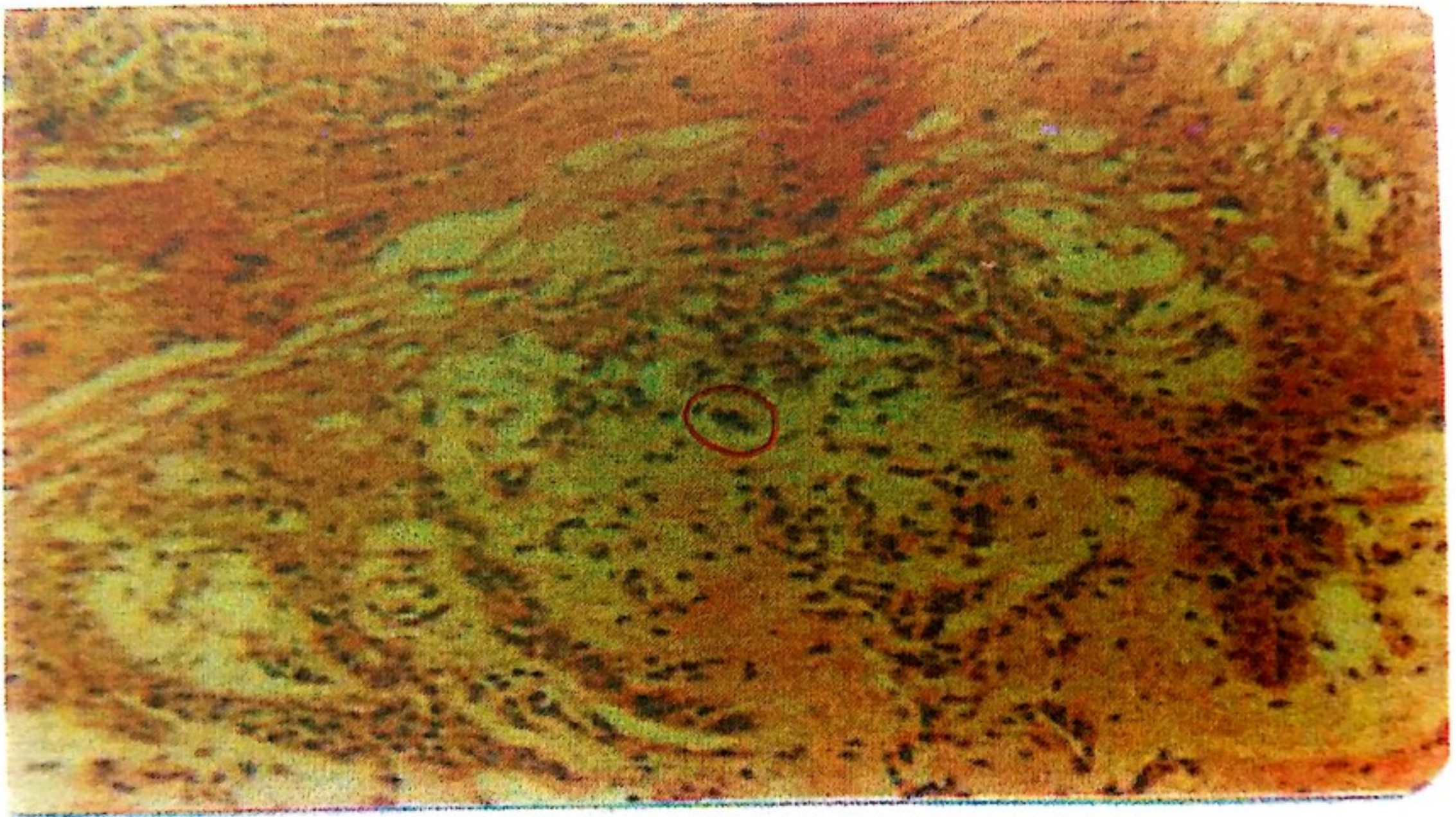




Cattle plague

congestion and reddening of the root of the teeth
and erosions of the lower gum

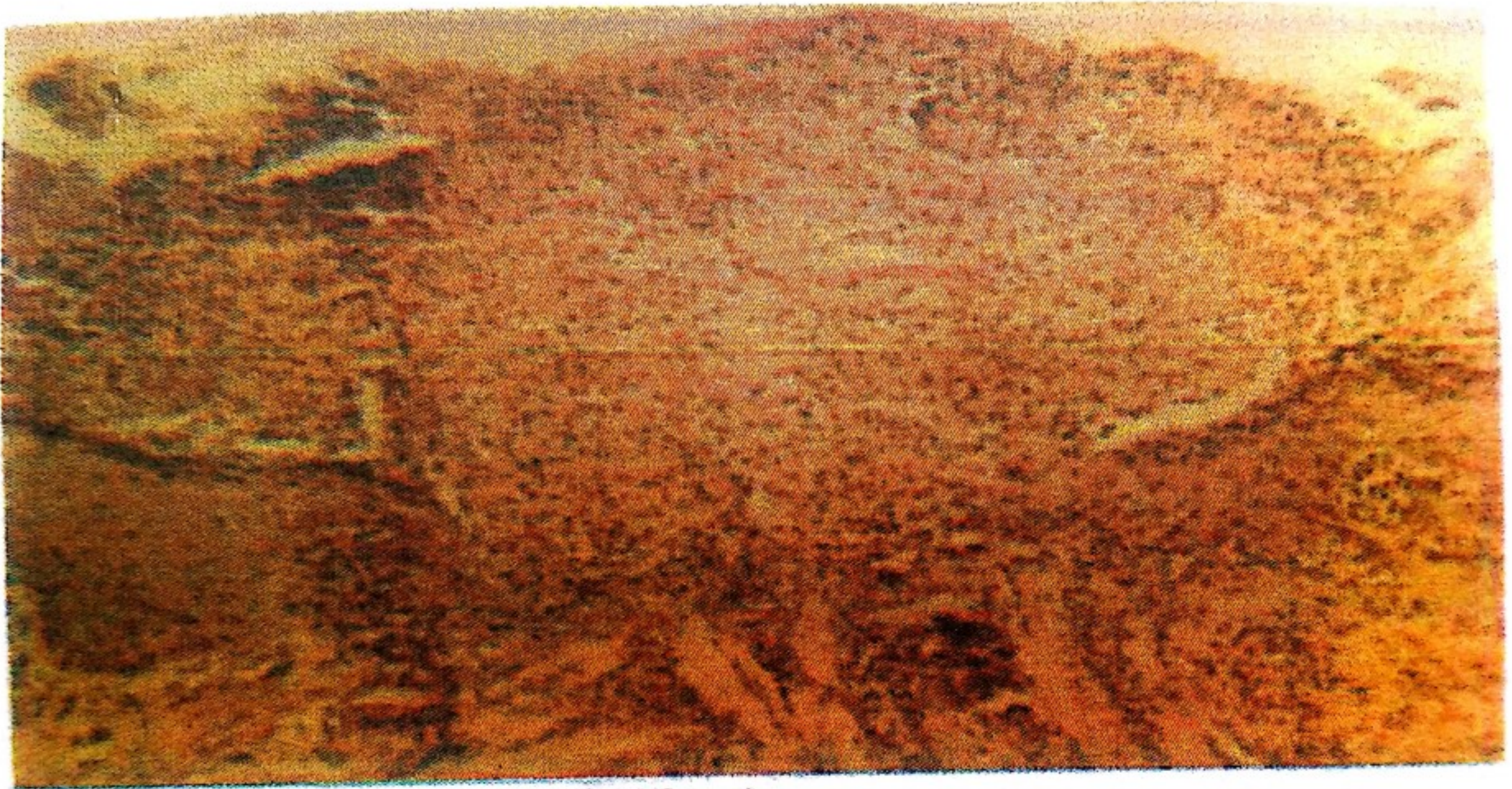




Cattle plague

Cheek : cells of stratum spinosum undergo coagulative necrosis
neutrophils infiltrate the mucosa
(giant cells and intracytoplasmic inclusions may be present)





Cattle plague

Tongue : necrotic stomatitis

regenerating granulation tissue in the mucous membrane - damage of the cells of stratum germinativum - chronic inflammation of the submucosa



Coagulative necrosis



Cattle plague

Lymph node: enlargement and edema

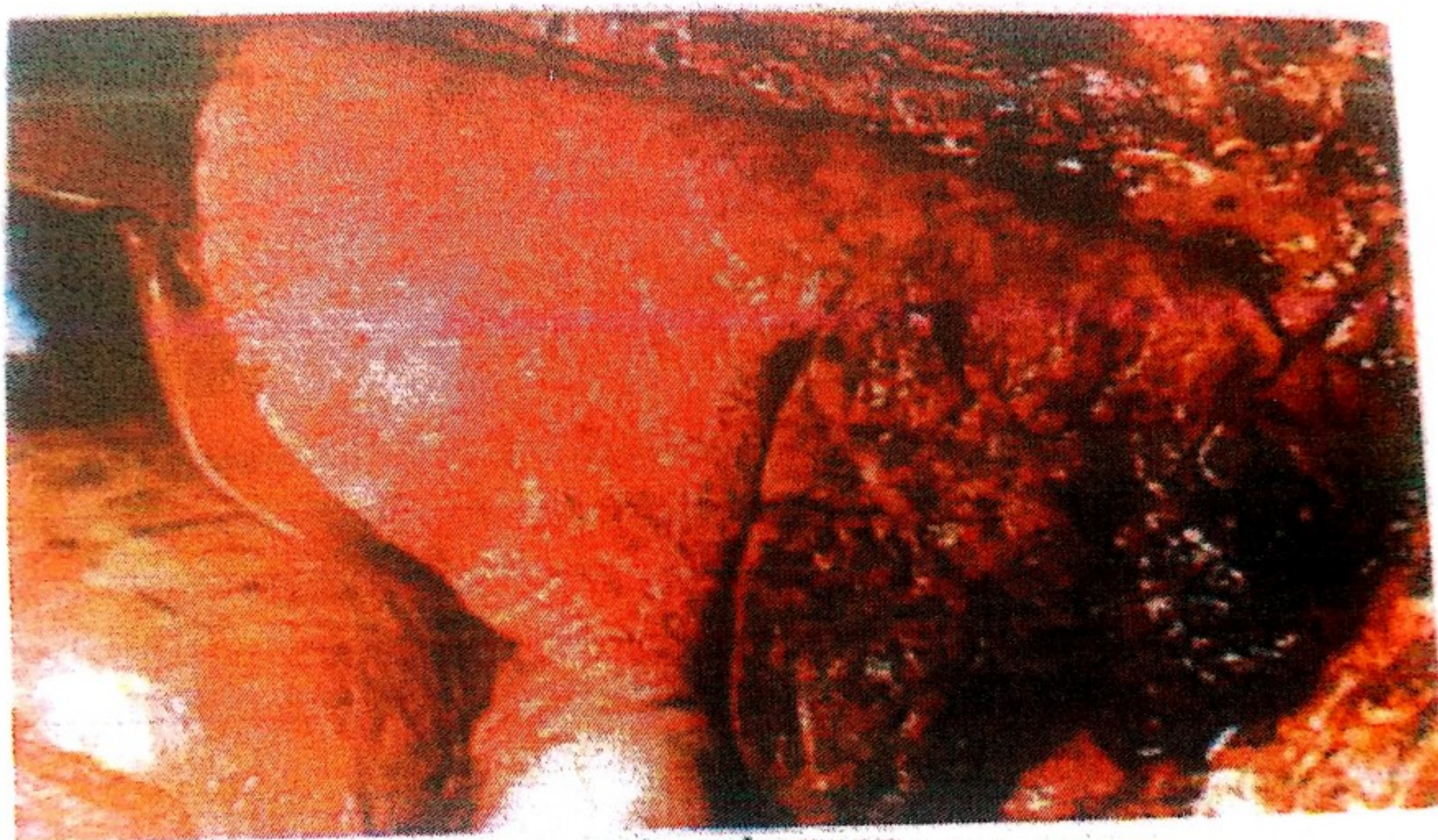




Cattle plague

Abomasum (fundic portion) : congestion and
haemorrhage

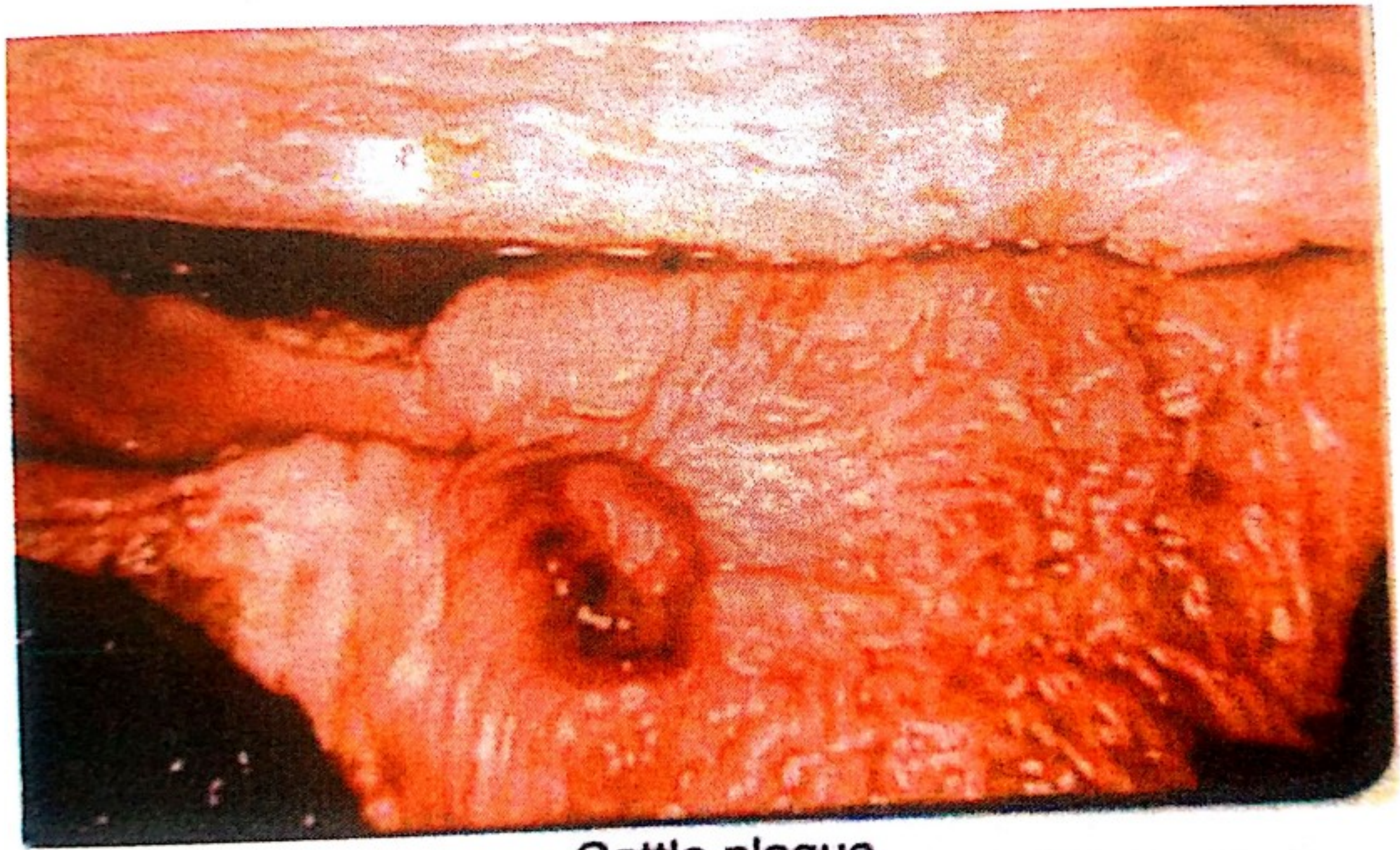




Cattle plague

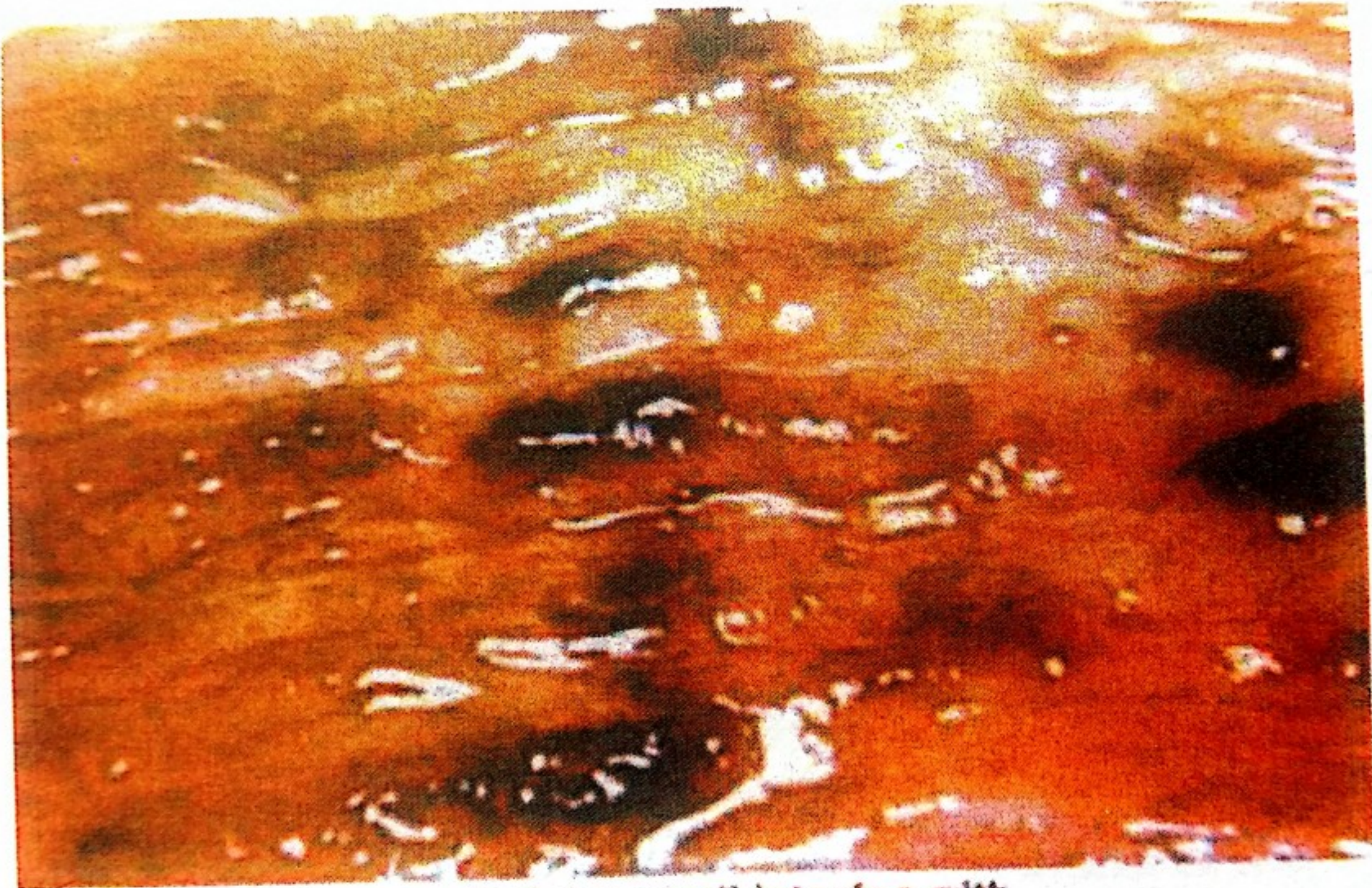
Lung: severe congestion of the anterior lobes





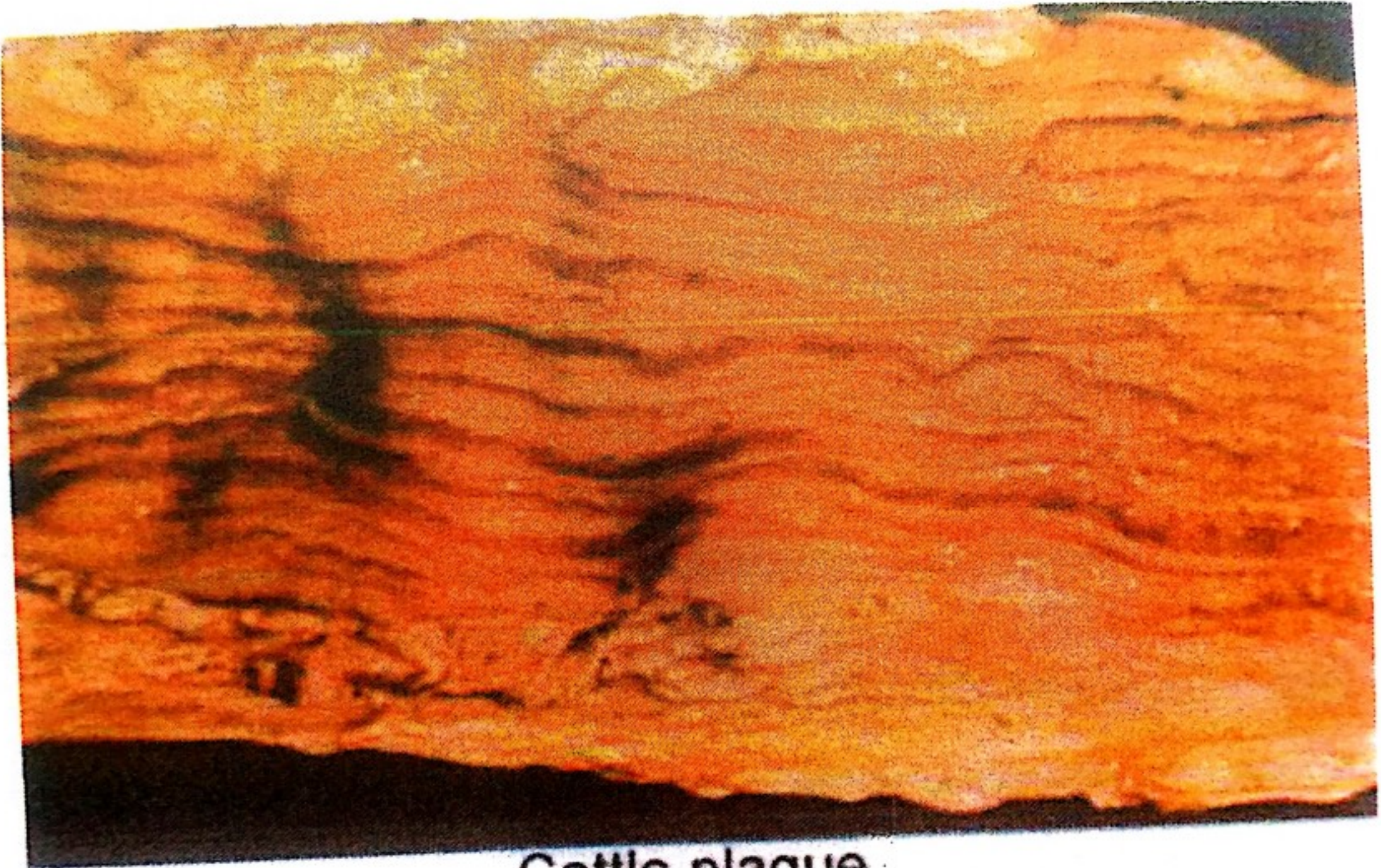
Cattle plague
congestion of the ileocecal valve





13 Close-up of an area of the small intestine with hemorrhage and erosions (RP).





Cattle plague
"Zebra-stripping " in the distal colon and rectum

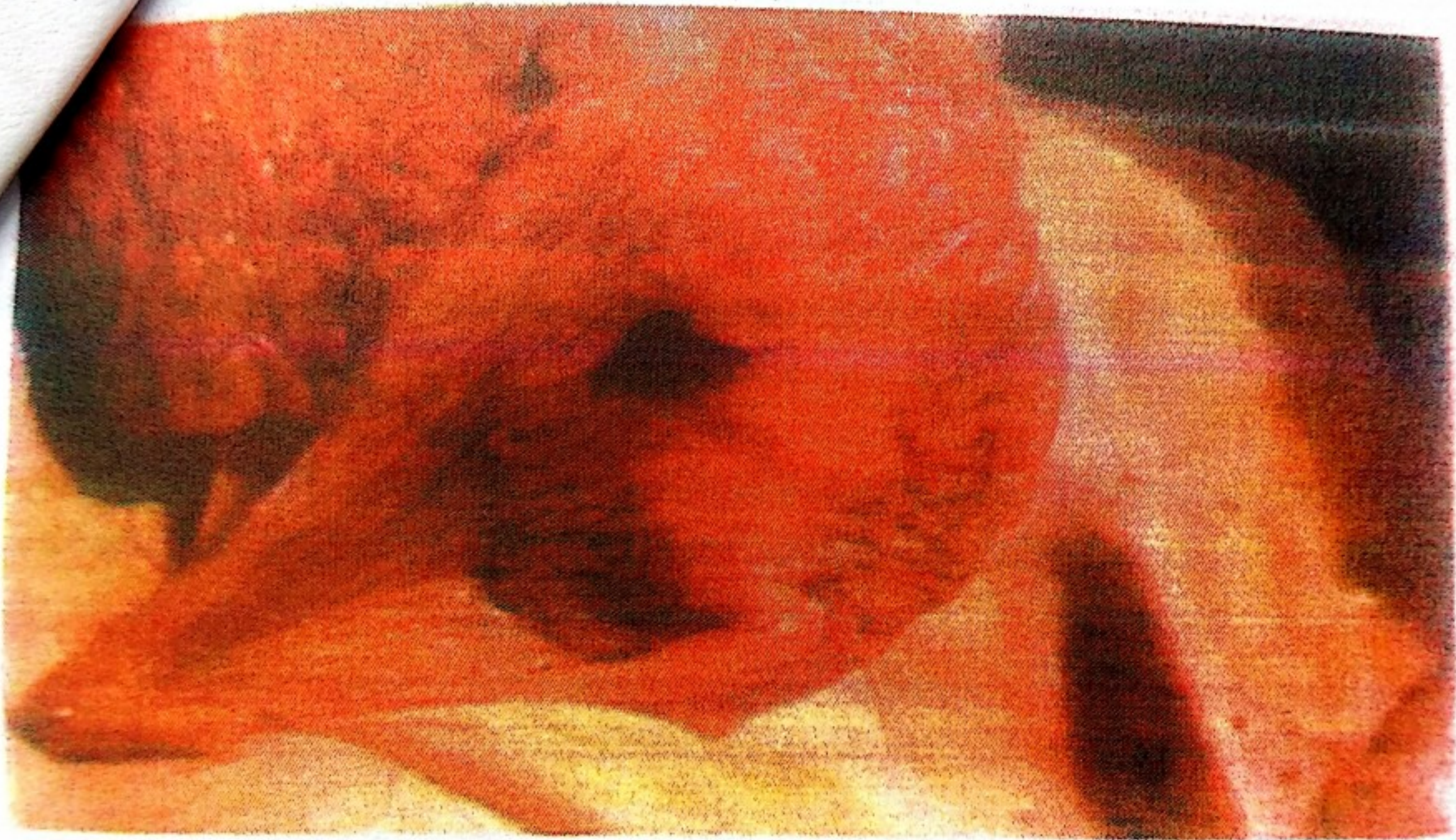




Cattle plague

Intestine: severe congestion and haemorrhage

✓



Cattle plague

Intestine (ileocecal valve) : severe haemorrhagic inflammation and thickening of the mucosa



Cattle plague

Haemorrhagic enteritis: the crests of longitudinal folds of the colon and transverse folds of the rectum show bright red haemorrhagic strippings (zebra markings)





Cattle plague

Small intestine: the mucosa above the area of Peyer's patches is necrotic and the epithelium undergo sloughing leading to the formation of ulcers

;

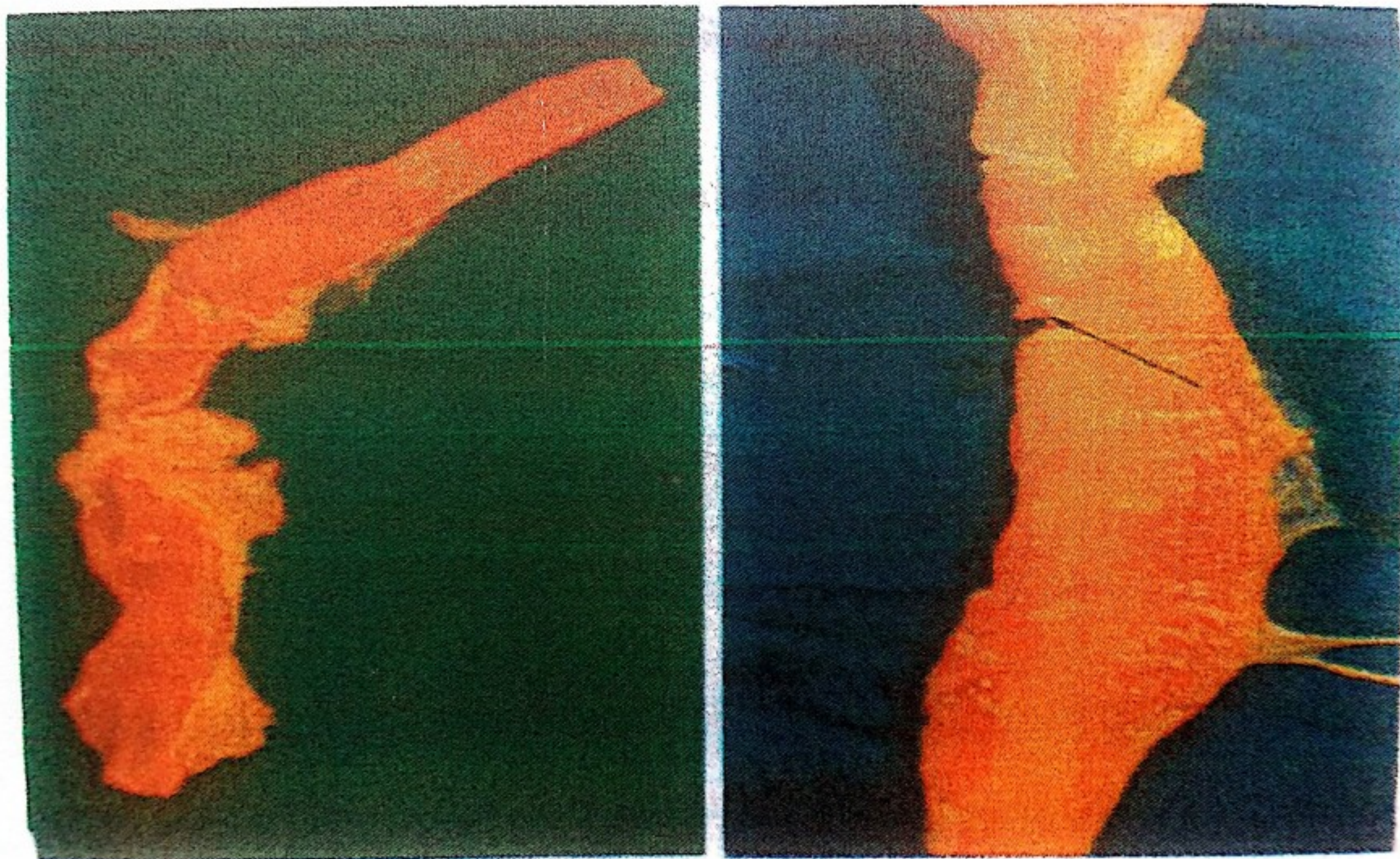




Cattle plague

Small intestine: haemorrhagic enteritis (the intestinal wall is thickened and intensively reddened or tinged with blood)

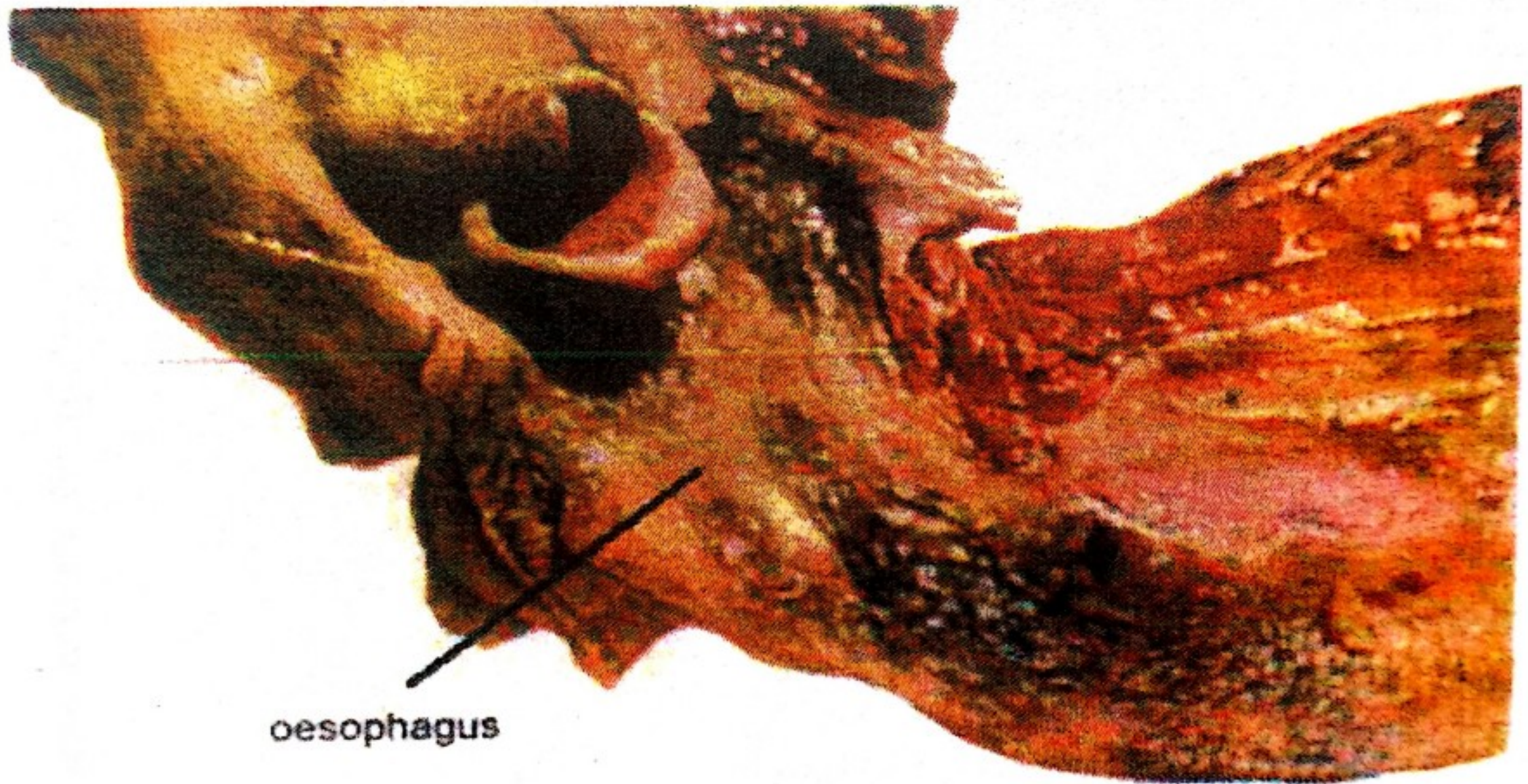




Cattle plague

severe congestion of the small intestine and
ileocecal valve

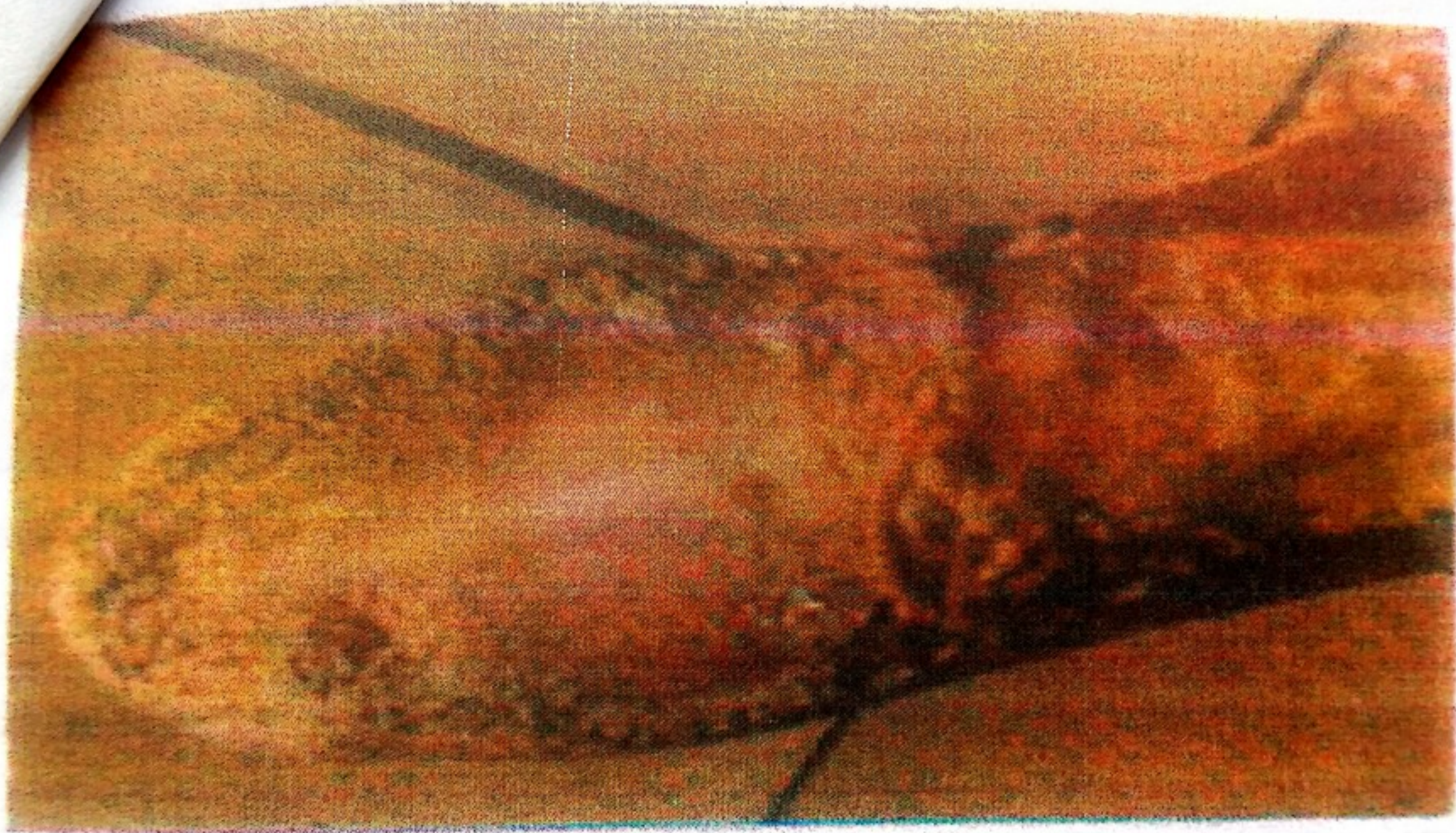




oesophagus

Cattle plague

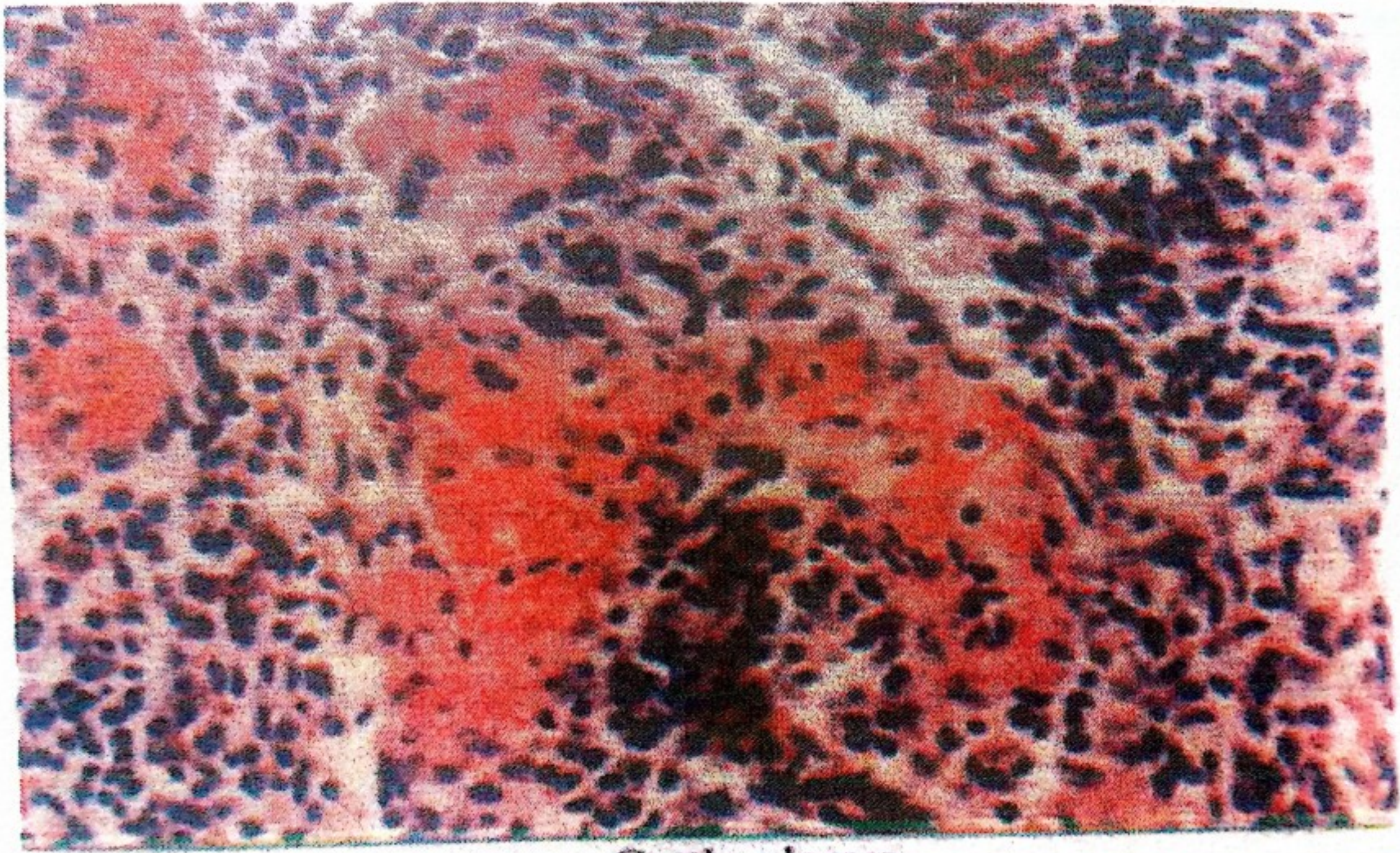
✓ Oesophagus : severe infection with focal yellowish-white necrotic areas on the mucosa



Cattle plague

Necrotic glossitis in the tongue
pin-headed foci on the dorsum of the tongue giving
the appearance as if the organ being sprinkled with bran-mash

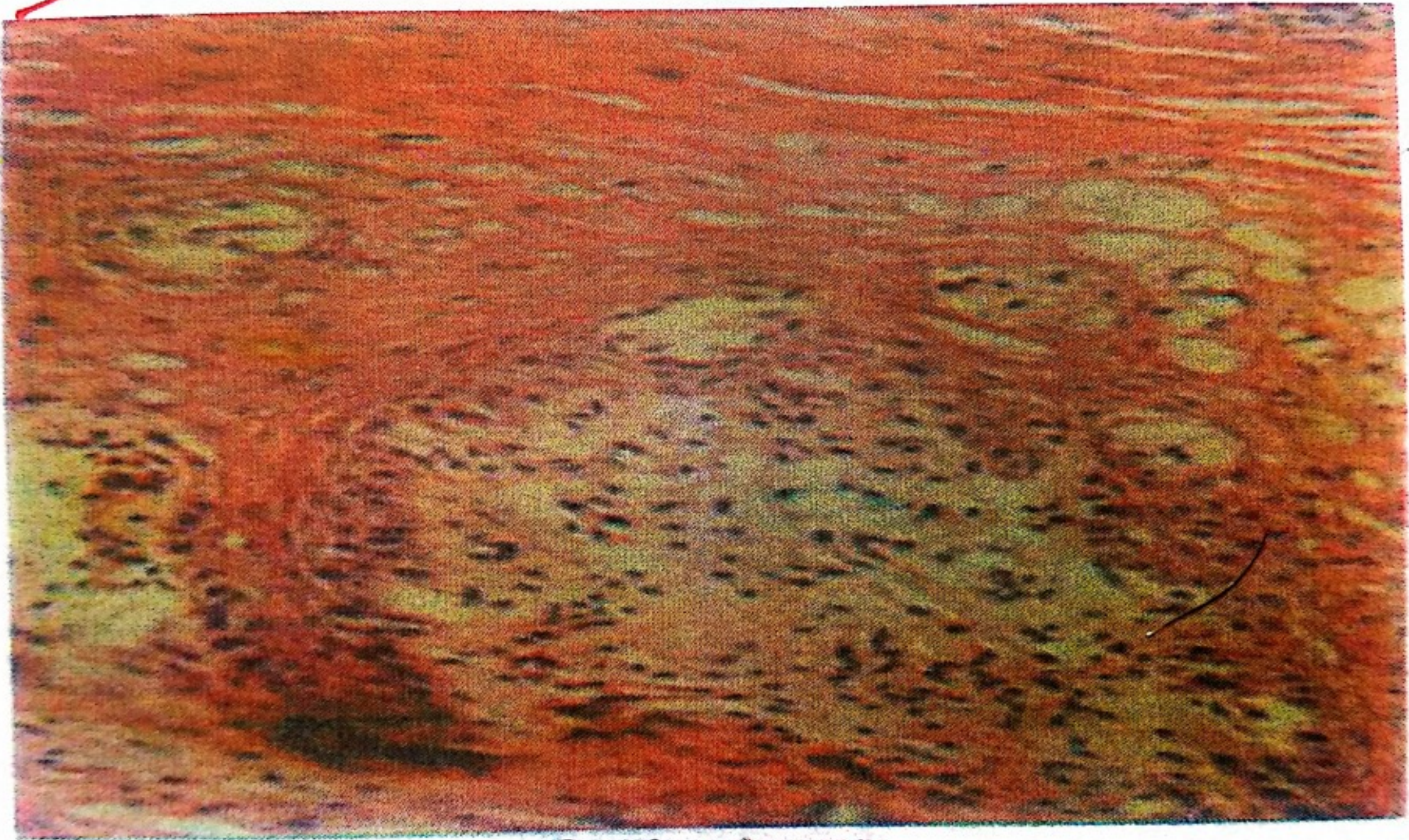




Cattle plague

Lymph node: destruction and disappearance of lymphocytic elements (lymphoblasts and lymphocytes) leaving eosinophilic reticulum

Micrograph



Cattle plague

Lip: degeneration and vacuolation of cells of prickle cell layer may occur at an early stage followed by necrosis

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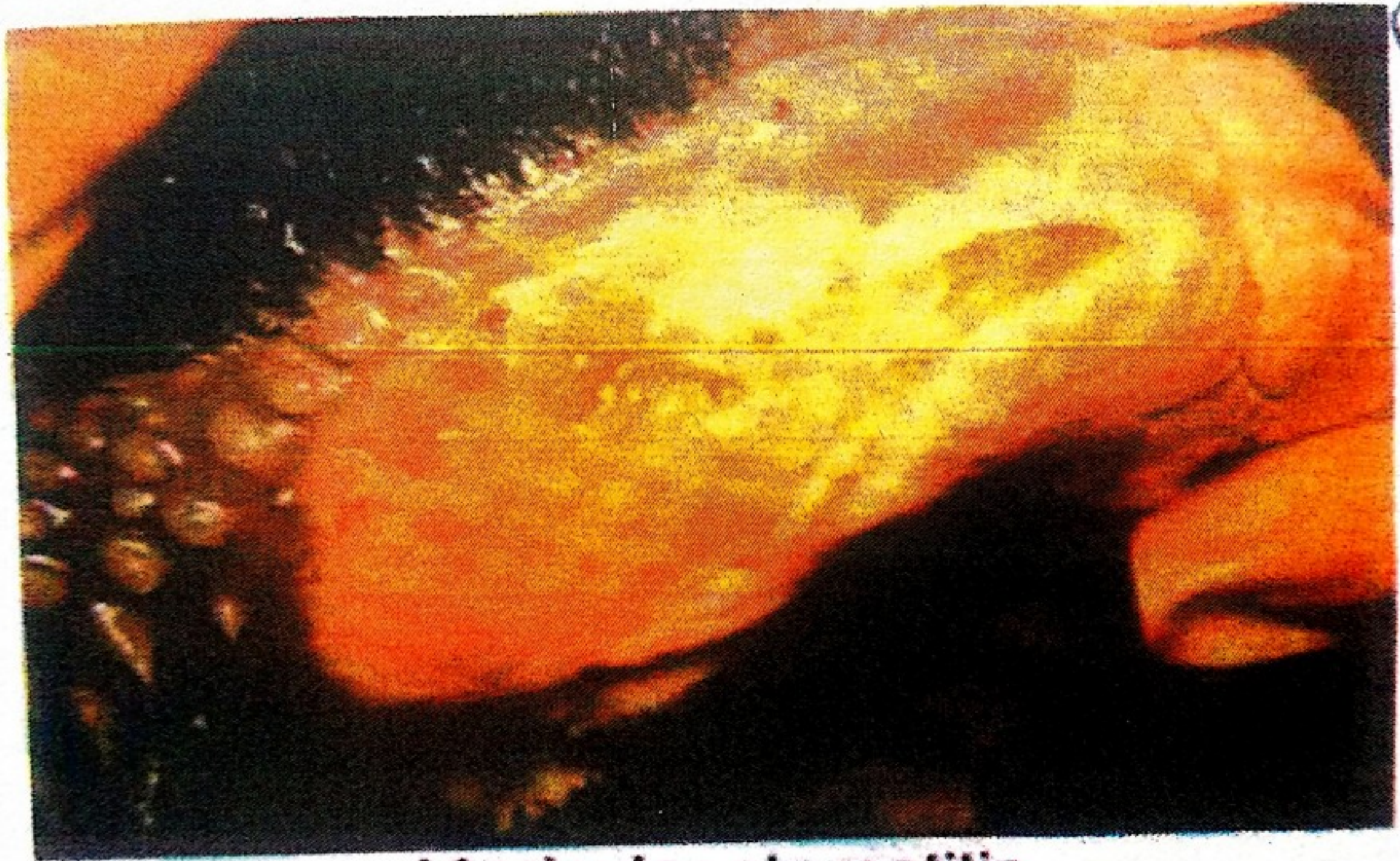
Vesicular Stomatitis

Mouth : vesicles / erosions

Tongue : vesicles / erosions

Feet : vesicles / erosions rarely

Brain : encephalomyelitis rarely



Vesicular stomatitis
Tongue: ruptured vesicles



Vesicular stomatitis
Lesions on the rugae of the hard palate

Lumpy skin disease

- Calf showing Various sized cutaneous nodules in a severe case of lumpy skin disease





Lumpy skin disease

- Enlarged prefrontal Lnn



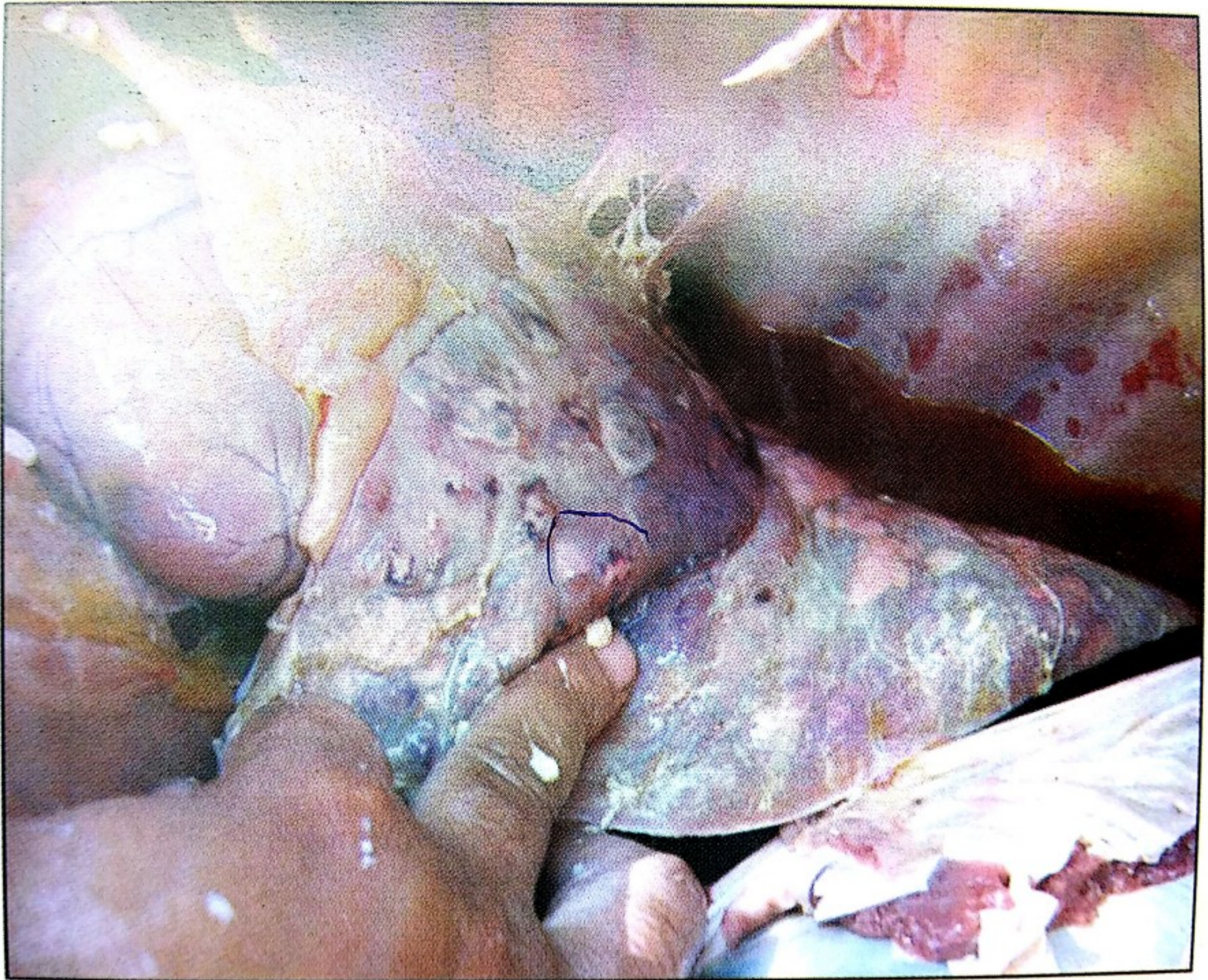
Lumpy skin disease

- Ulceration due to sloughing of the necrotic nodules with hemorrhagic exudate were seen.



Lumpy skin disease

- Lung showing pale grayish f necroticoci



Lumpy skin disease

Cut surface of the nodules in the
parenchyma of the lung with interlobular
edema



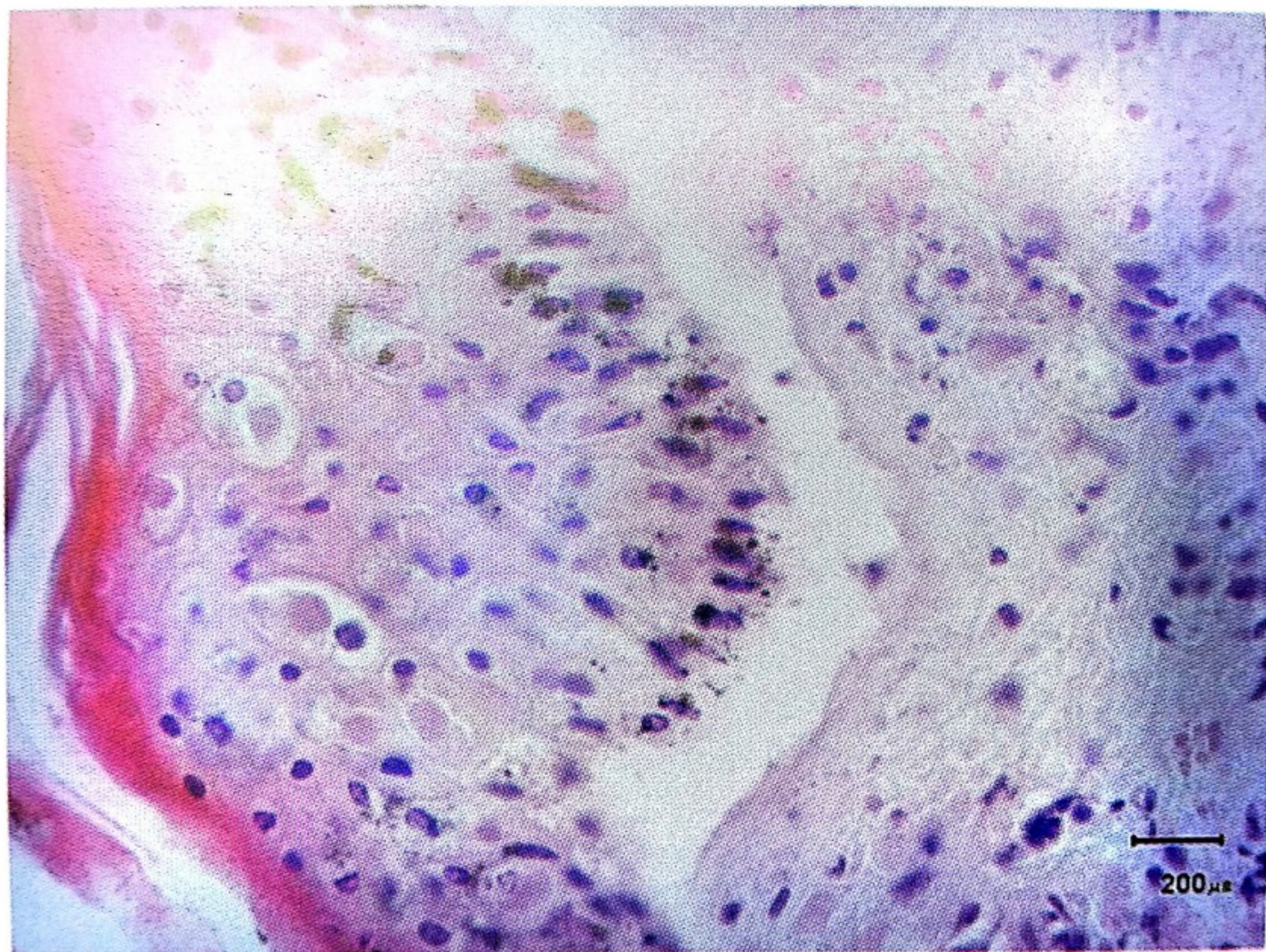
Lumpy skin disease

Organ: skin

Stain: H&E

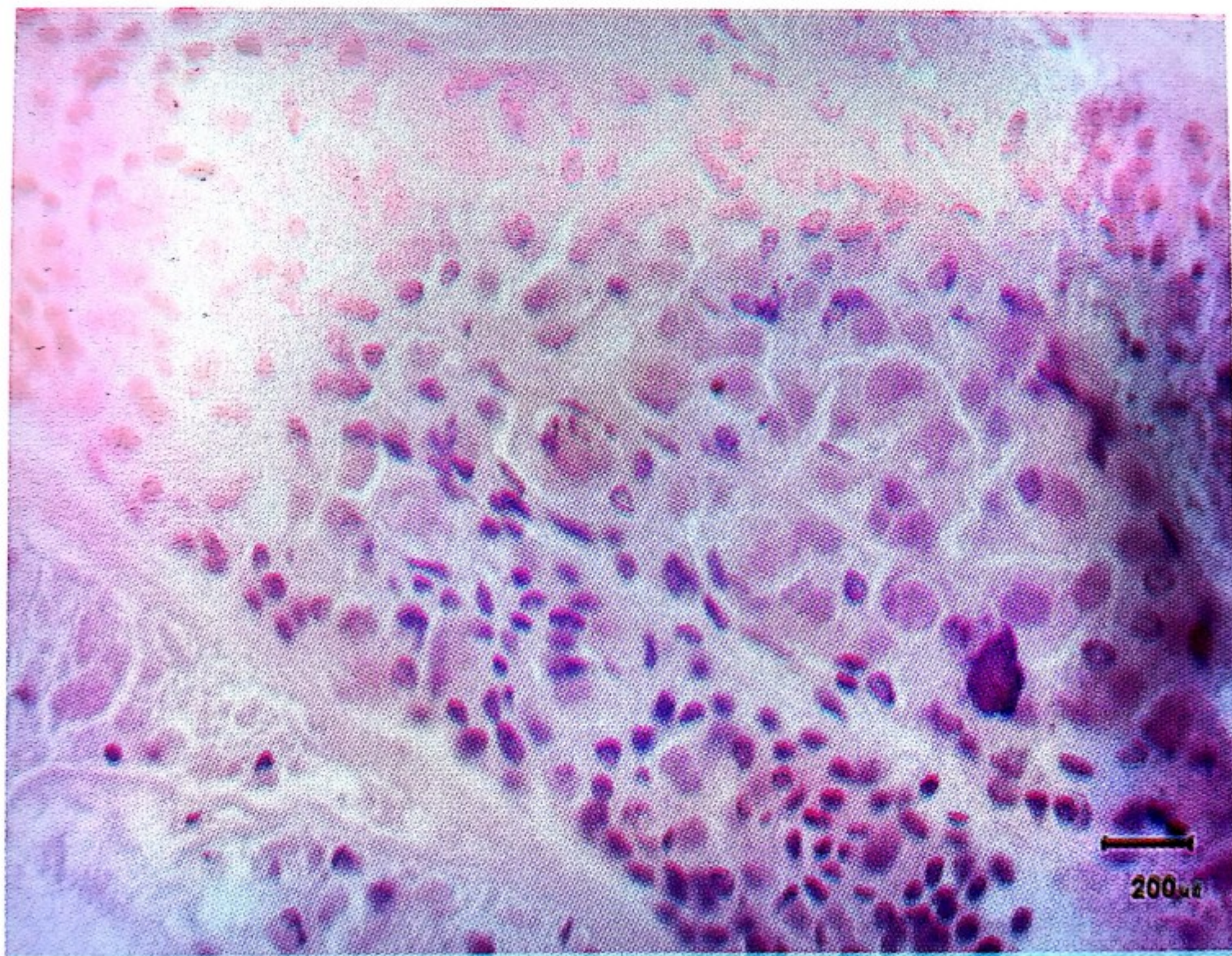
Disease: LSD

Micro: Eosinophilic intracytoplasmic inclusion bodies are seen in the epidermal cells with minimal hydropic degeneration



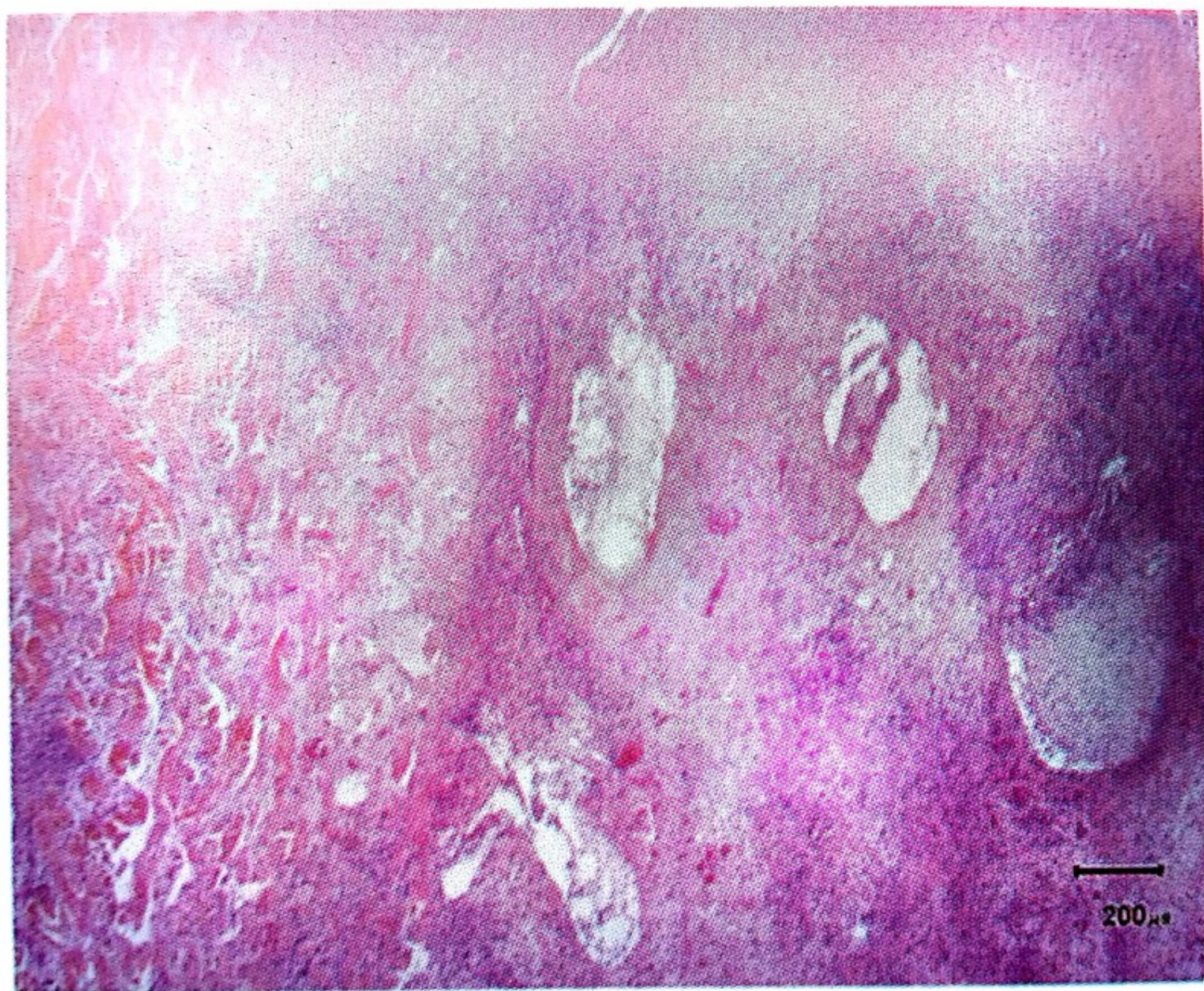
Lumpy skin disease

- Organ: skin
- Stain: H&E
- Disease: LSD
- Micro: Eosinophilic intracytoplasmic inclusion bodies are seen in the epidermal cells of hair follicle and sebaceous glands



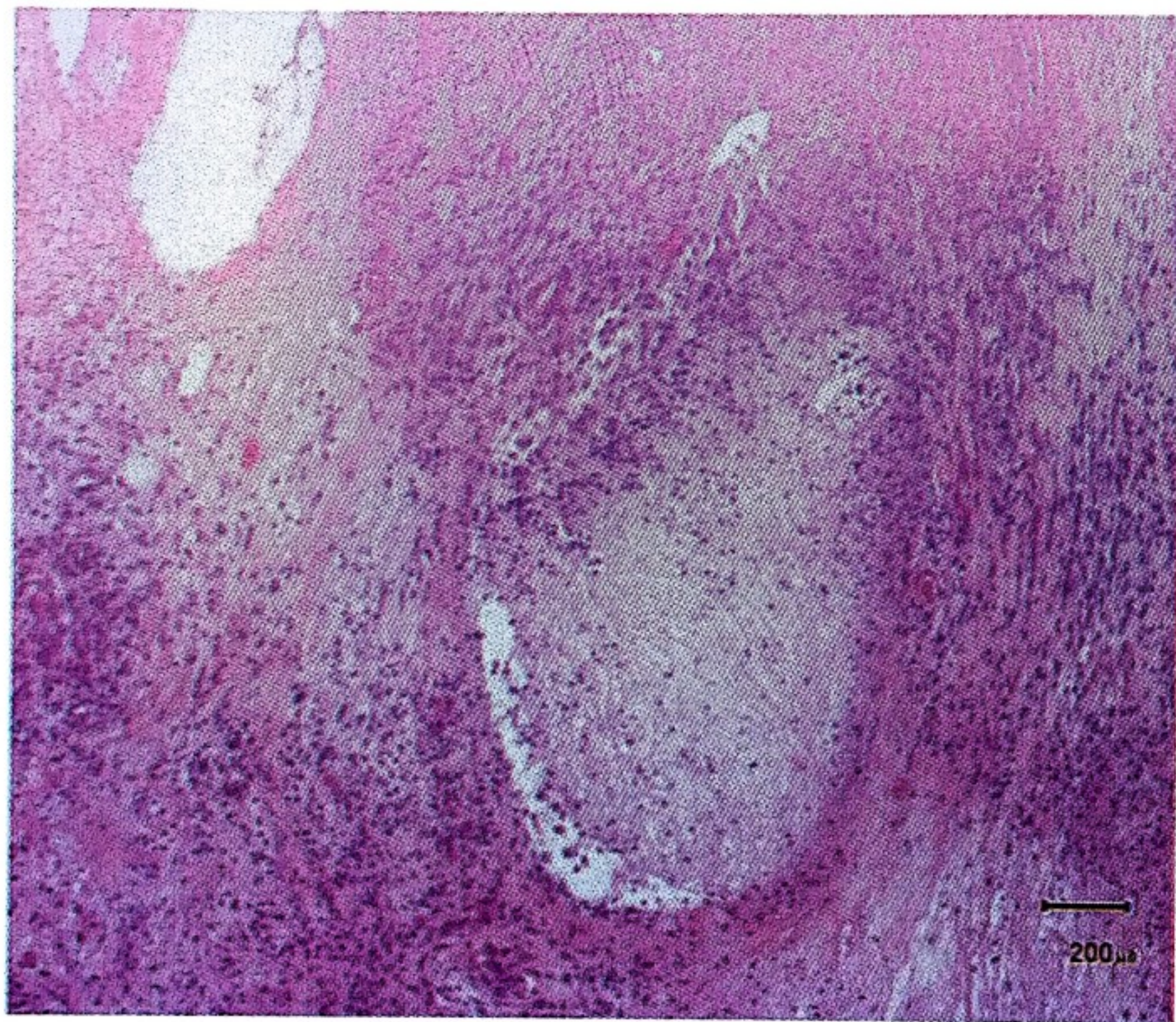
Lumpy skin disease

- Organ: skin
- Stain: H&E
- Disease: LSD
- Lesion: Vasculitis, thrombosis, edema and necrosis are seen in deep dermis



Lumpy skin disease

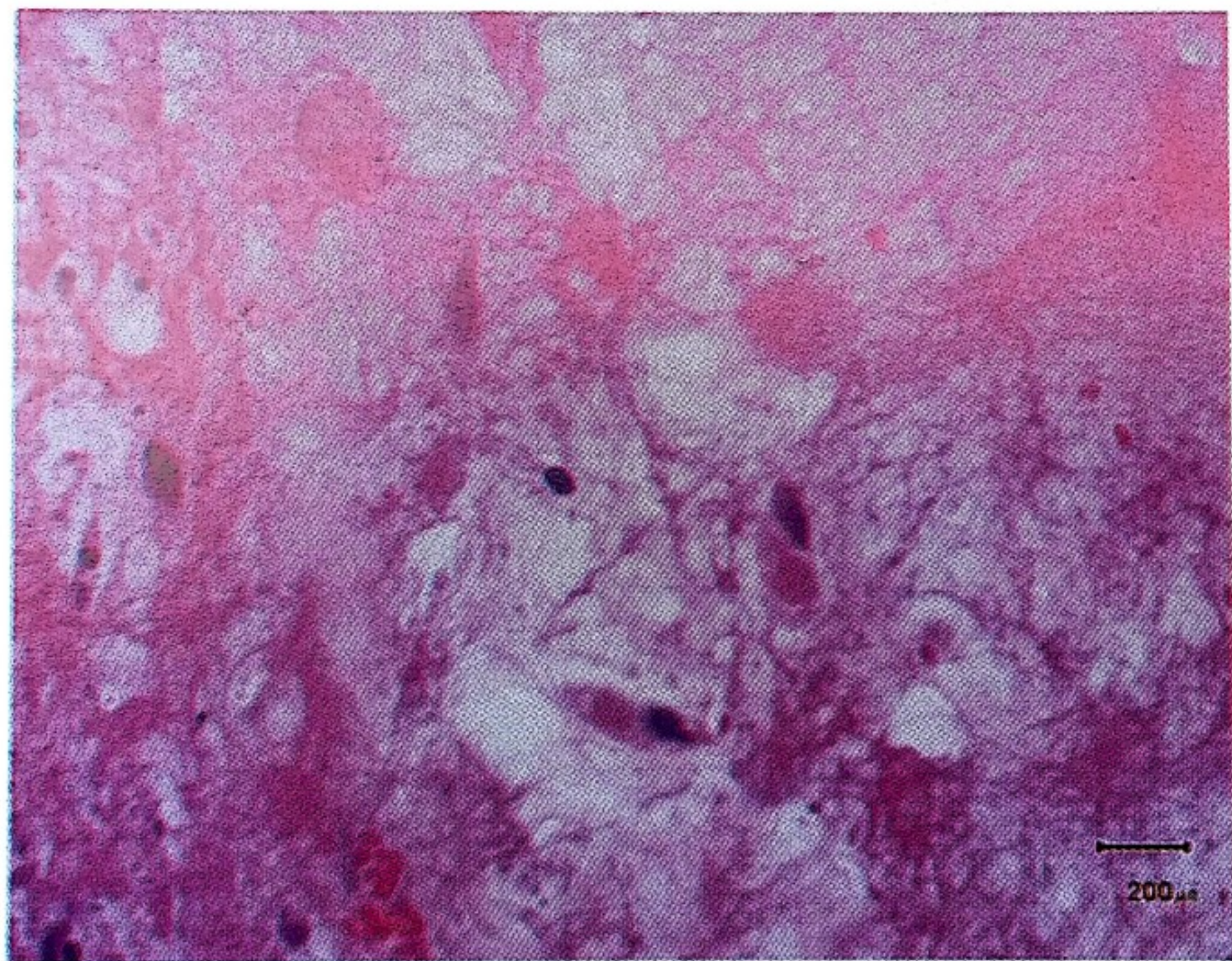
- Organ: skin
- Stain: H&E
- Disease: LSD
- Micro: High power to show the thrombosed blood vessel surrounded by neutrophils



Lumpy skin disease

- Organ: skin
- Stain: H&E
- Disease: LSD
- Lesion: Eosinophilic intracytoplasmic inclusion bodies are seen in macrophages infiltrating dermis

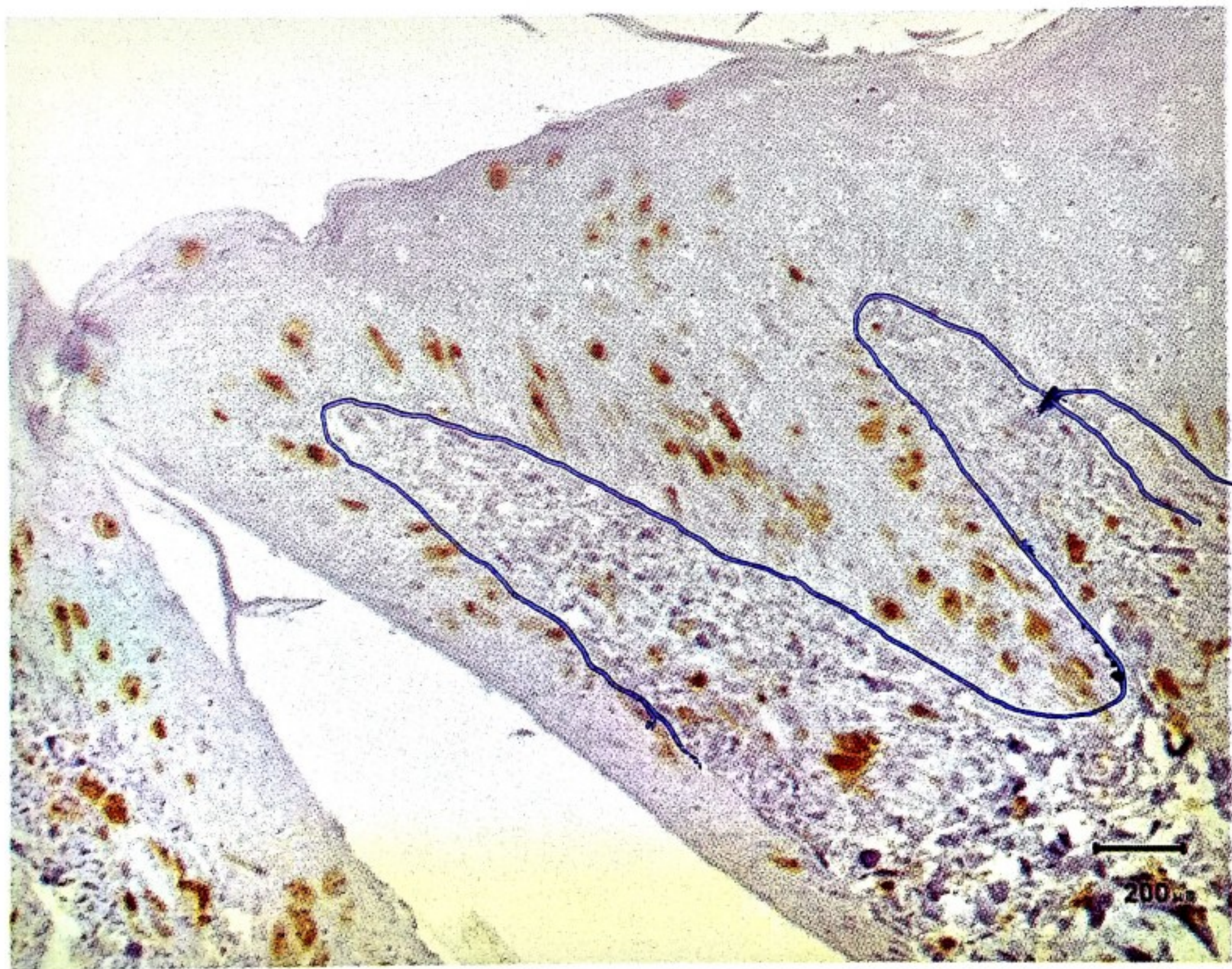
↳ ICIB



Lumpy skin disease

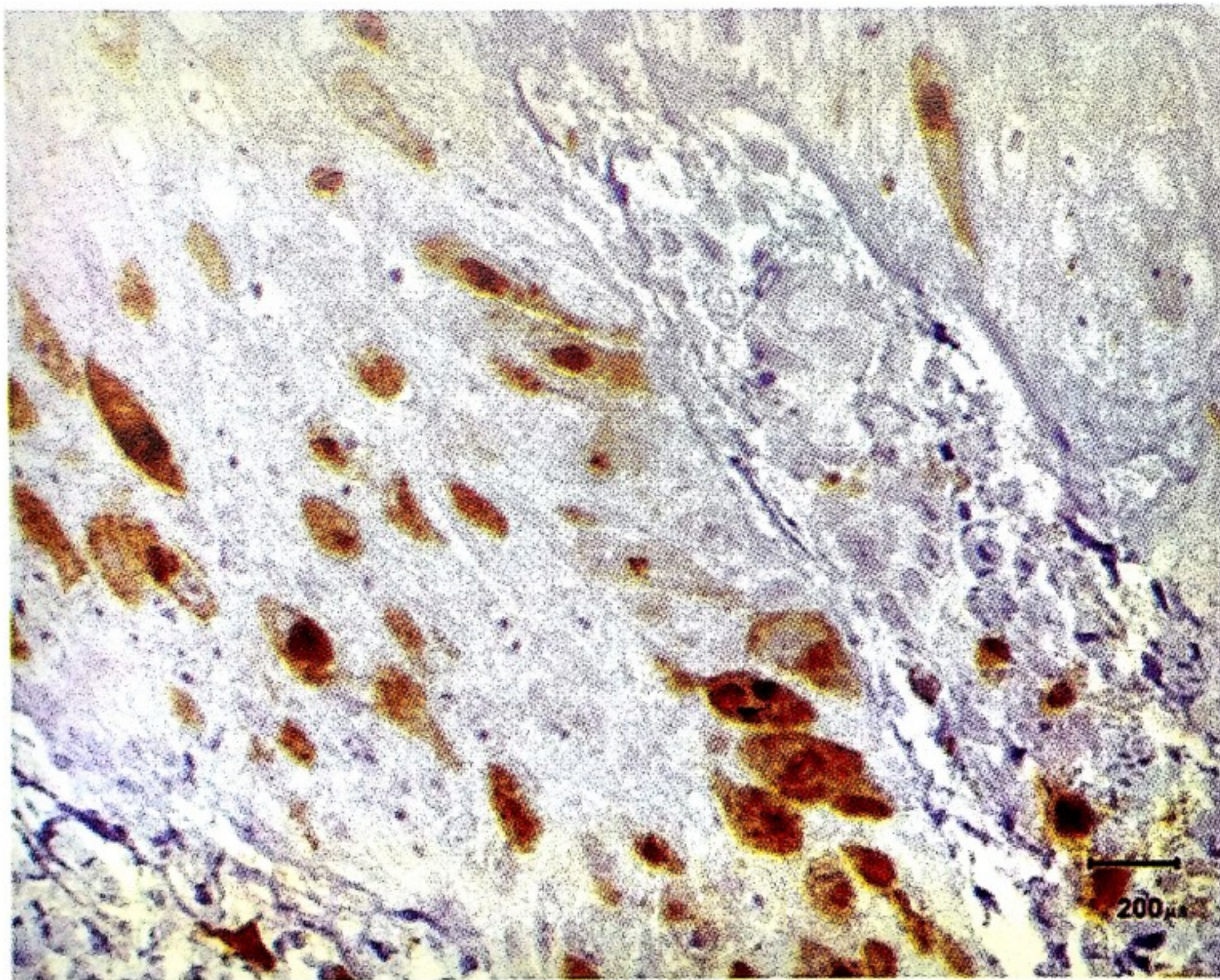
- Organ: skin
- Stain: ~~H&E~~ IHC
- Disease: LSD
- Lesion: Positive brown immunolabelling against LSDv are seen in both epidermis and dermis

Immunohistochemistry



Lumpy skin disease

- Organ: skin
- Stain: ~~H&E~~ IHC
- Disease: LSD
- Lesion: High power of the previous figure to show positive brown immunolabelling against LSDv are seen in both epidermis and dermis



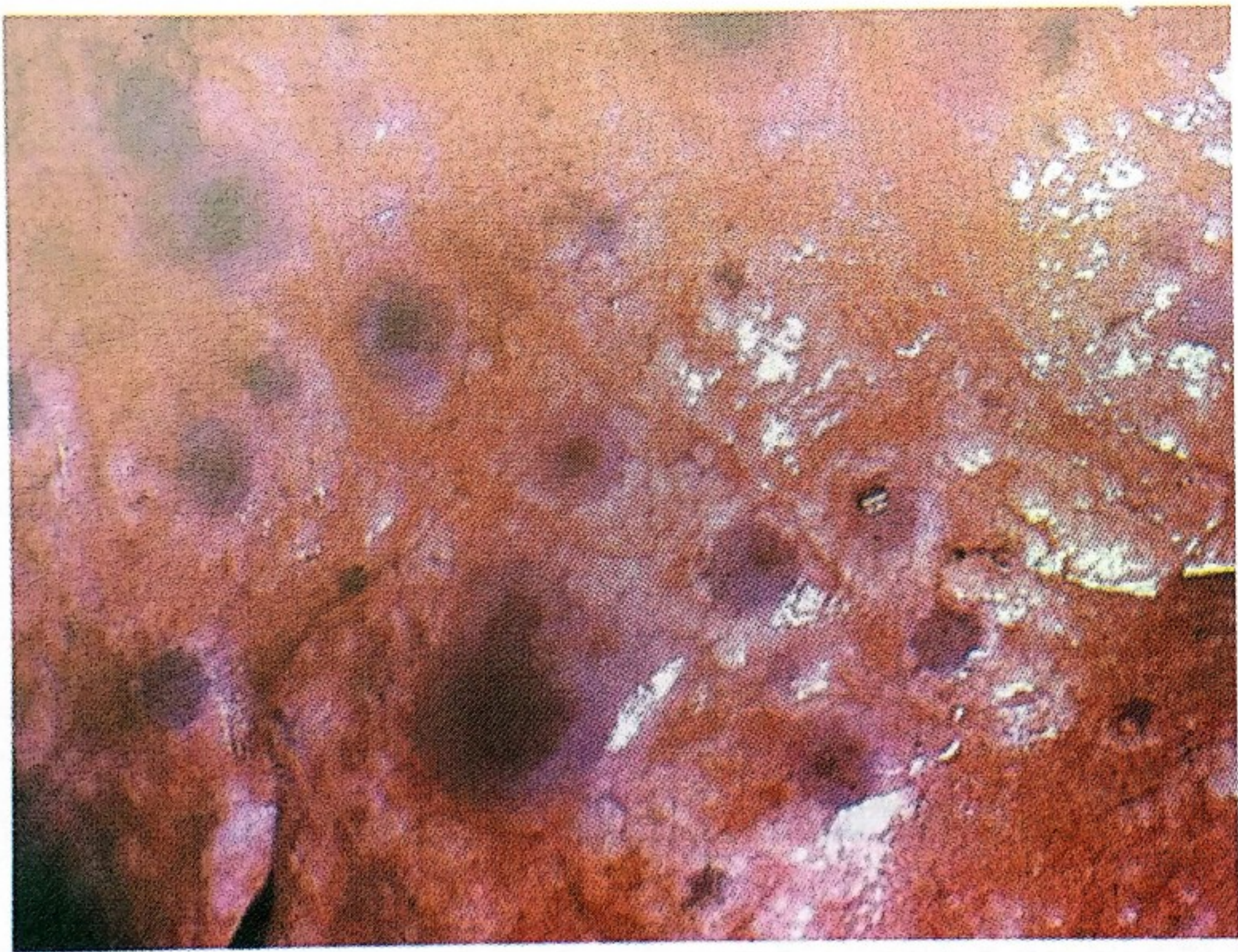
Sheep pox

papules and pustules were seen
on the muzzle and lips



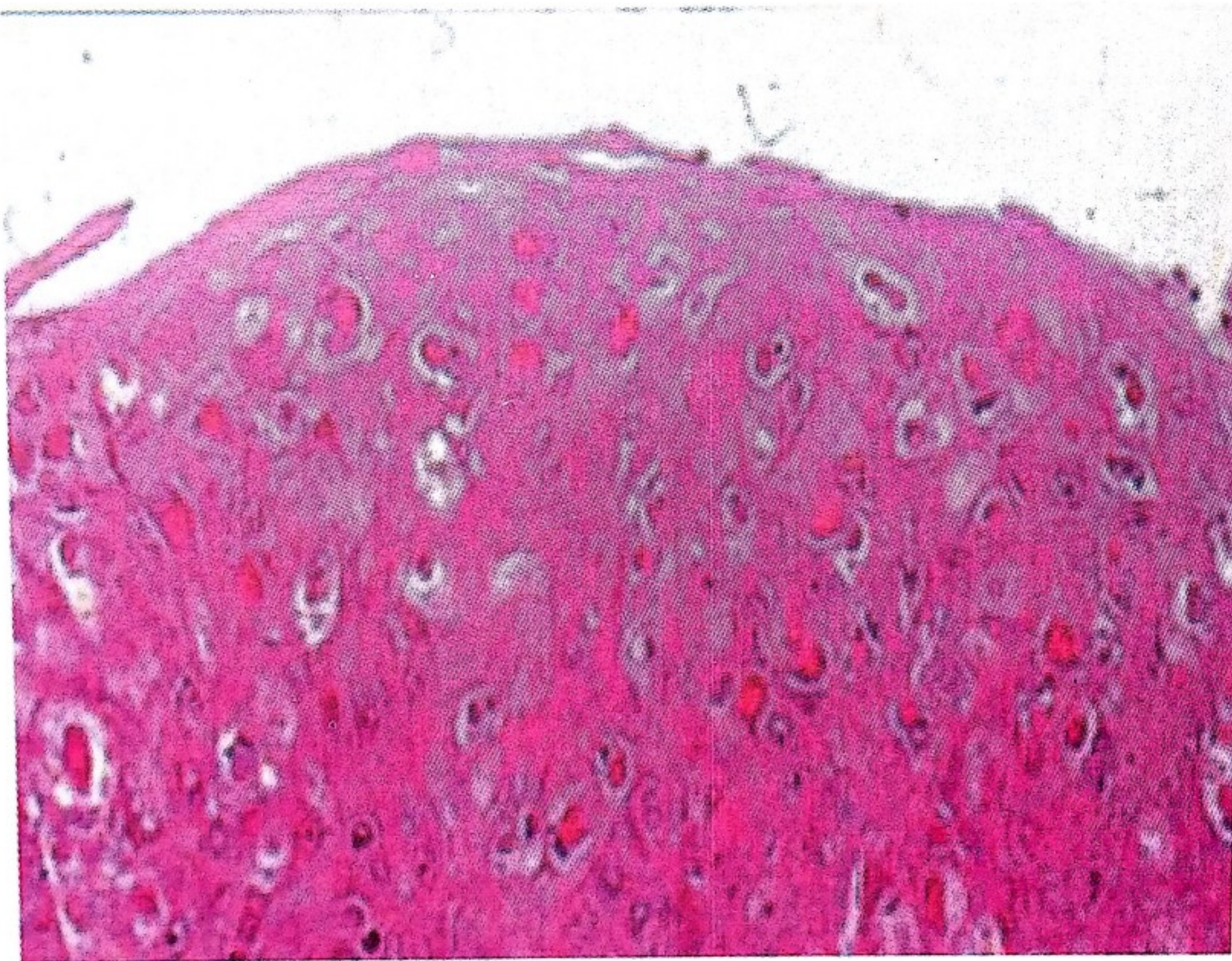
Sheep pox

- Reddish to whitish nodules & papules in the lungs



pox

- Organ: skin
- Stain: H&E
- Disease: sheep pox
- Micro: Hypertrophy and hyperplasia of epidermal prickle cells. Numerous eosinophilic inclusions distend the cytoplasm of the affected cells.



✓

IBR

**Disease: IBR (infectious pustular
balanoposthitis)**

Macro: Rupture pustule on the penis



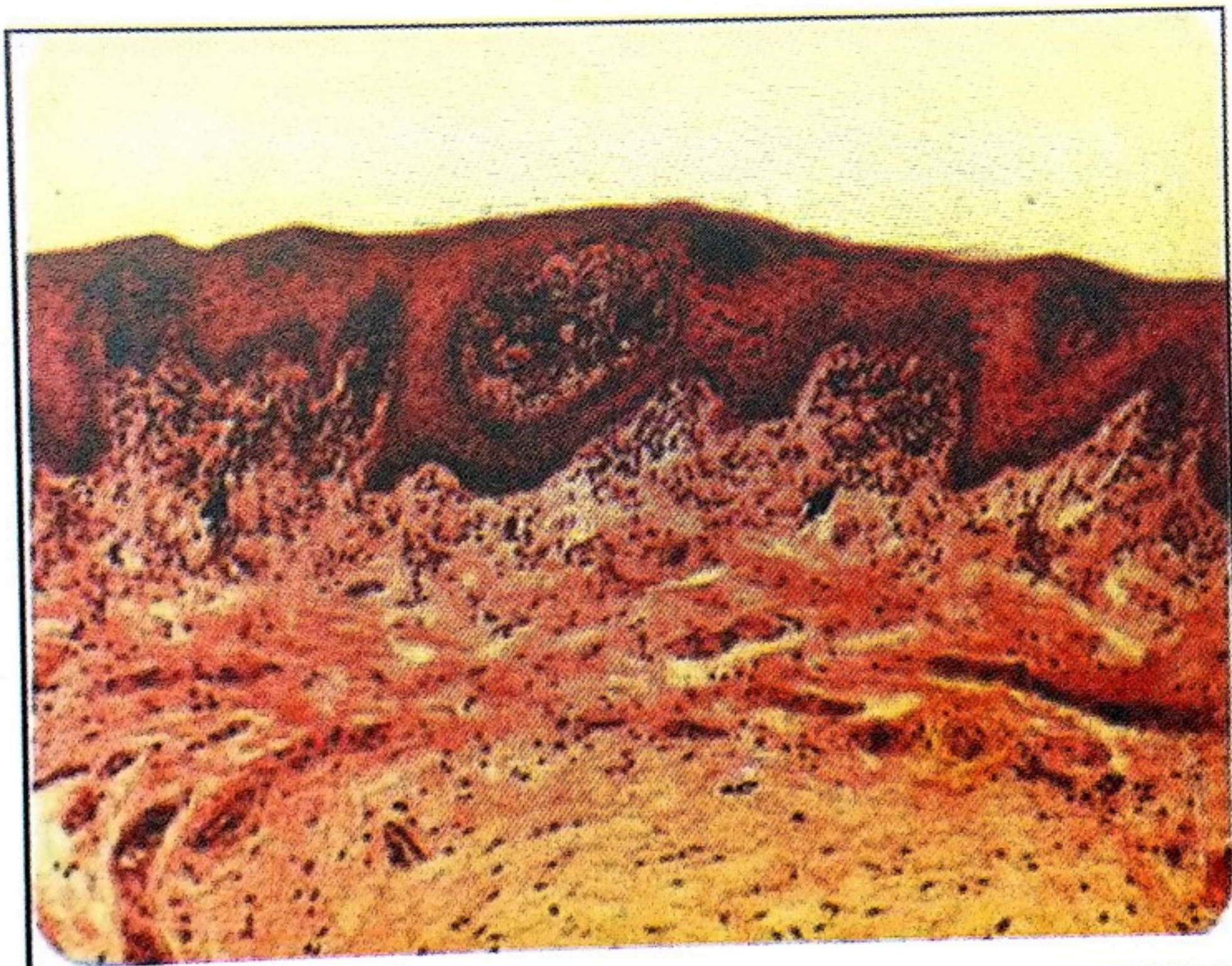
IBR

Disease: IBR (infectious pustular
balanoposthitis)

Stain: H&E

Organ: penis

Micro: Round c ells infiltrations and edema



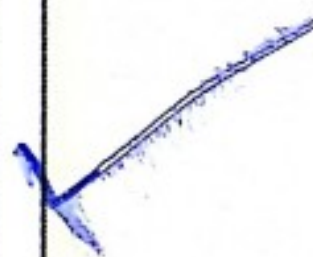
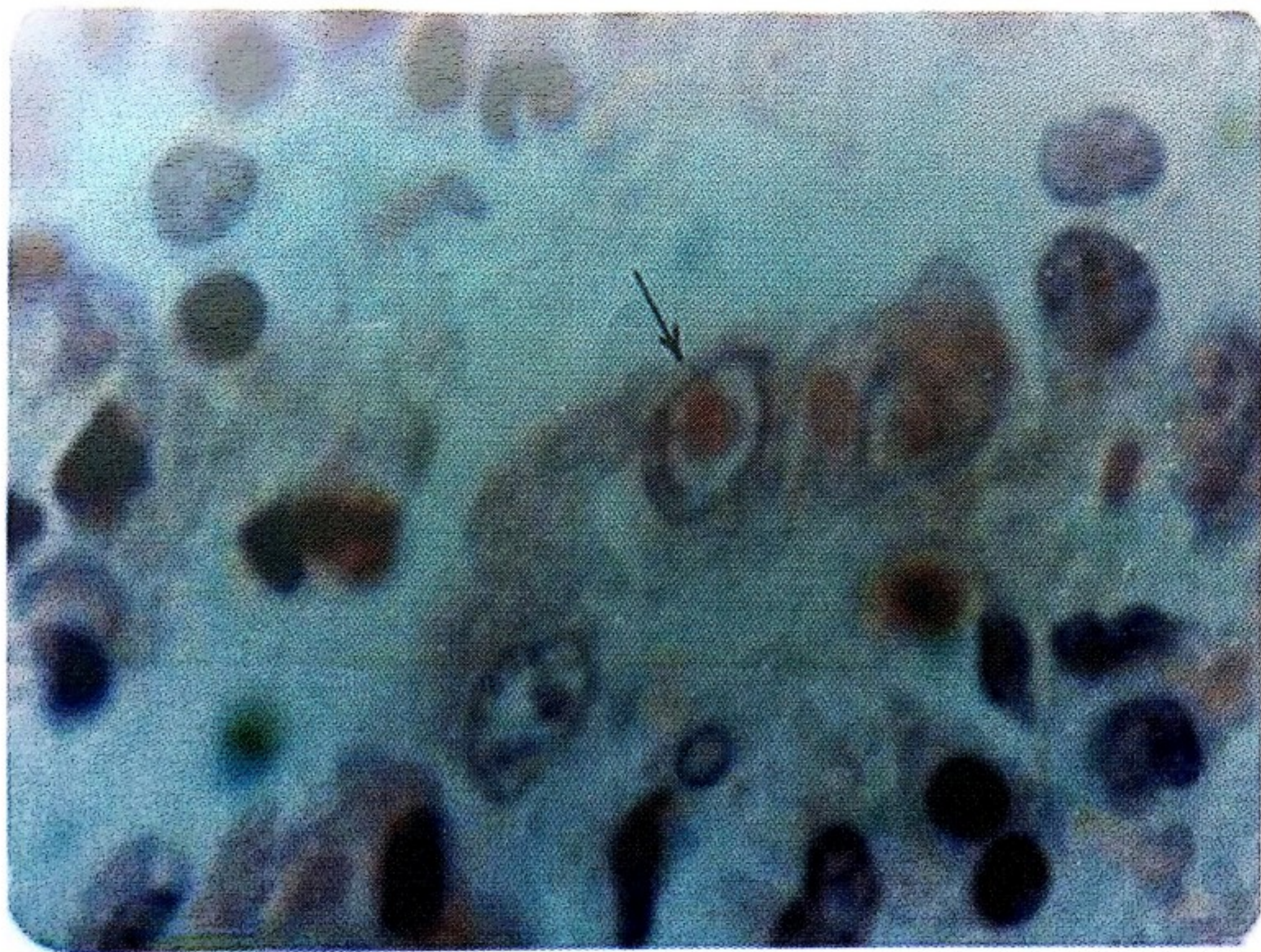
IBR

Disease: IBR

Stain: H&E

Organ: Bronchial epithelium

**Micro: Intranuclear eosinophilic inclusion
bodies in the bronchial epithelium.**



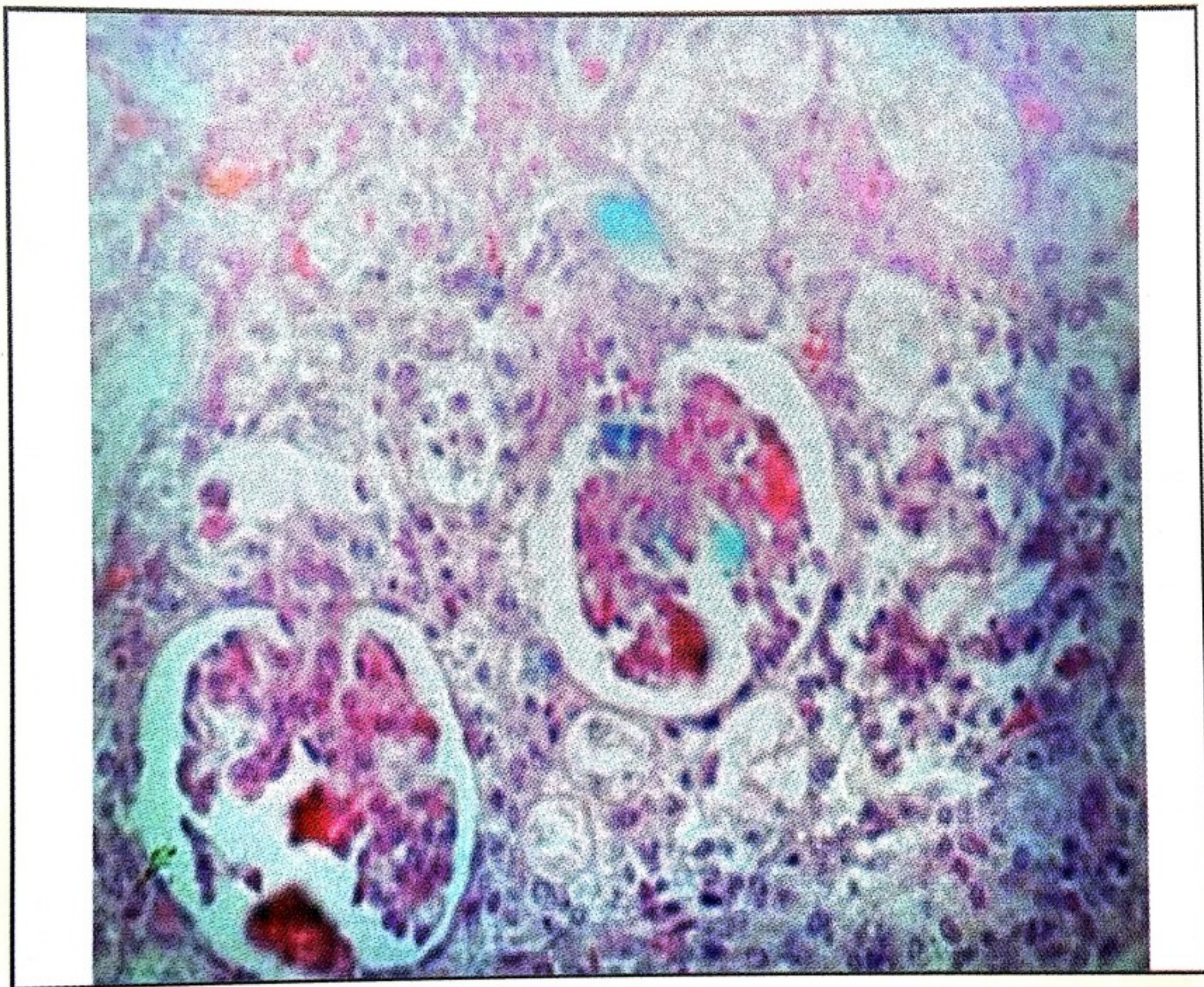
IBR

Disease: IBR

Stain: H&E

Organ: Kidney

**Micro: Coagulative necrosis of the epithelium lining
of renal tubules besides intranuclear
eosinophilic inclusion bodies**



✓

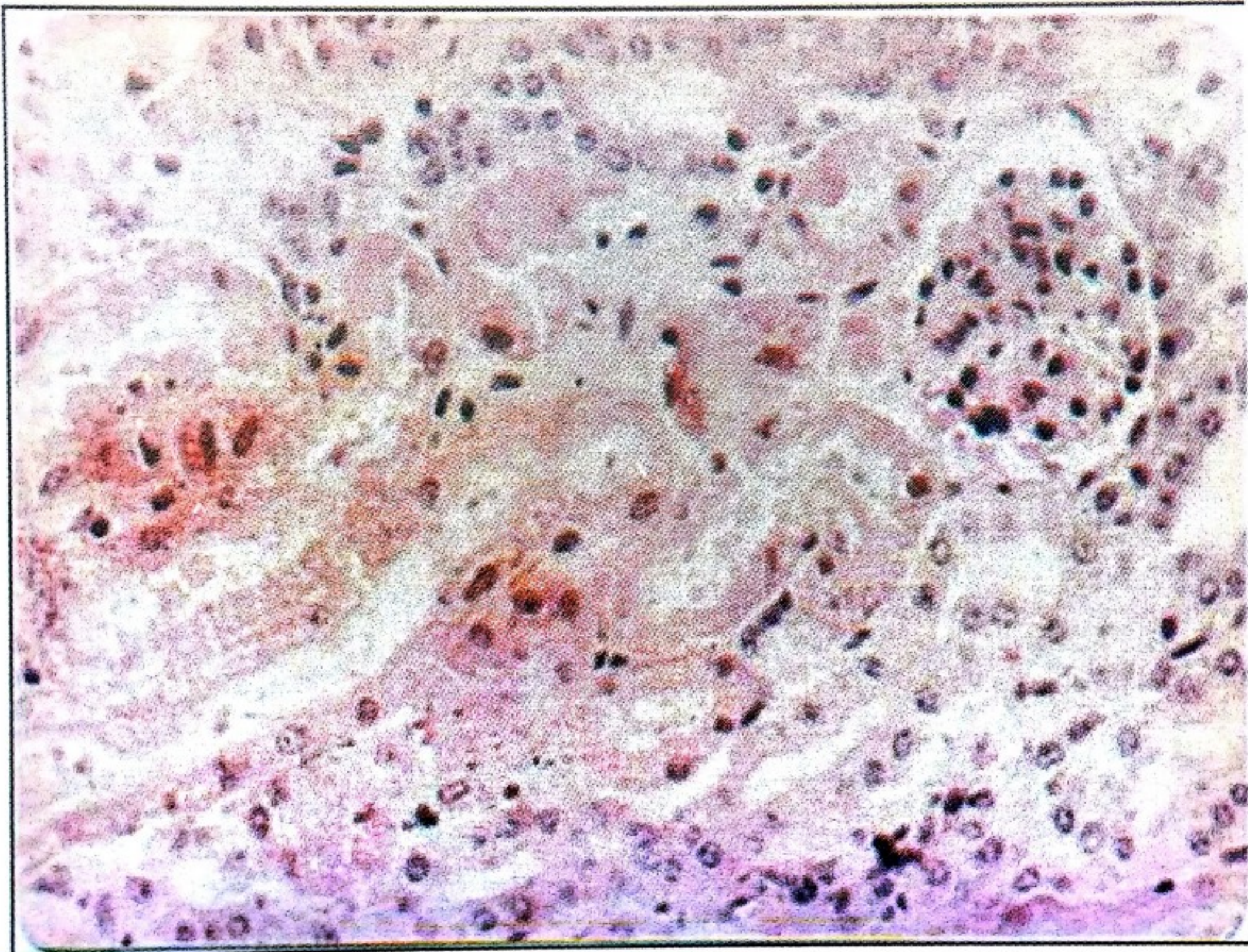
IBR

Disease: IBR

Stain: H&E

Organ: Kidney

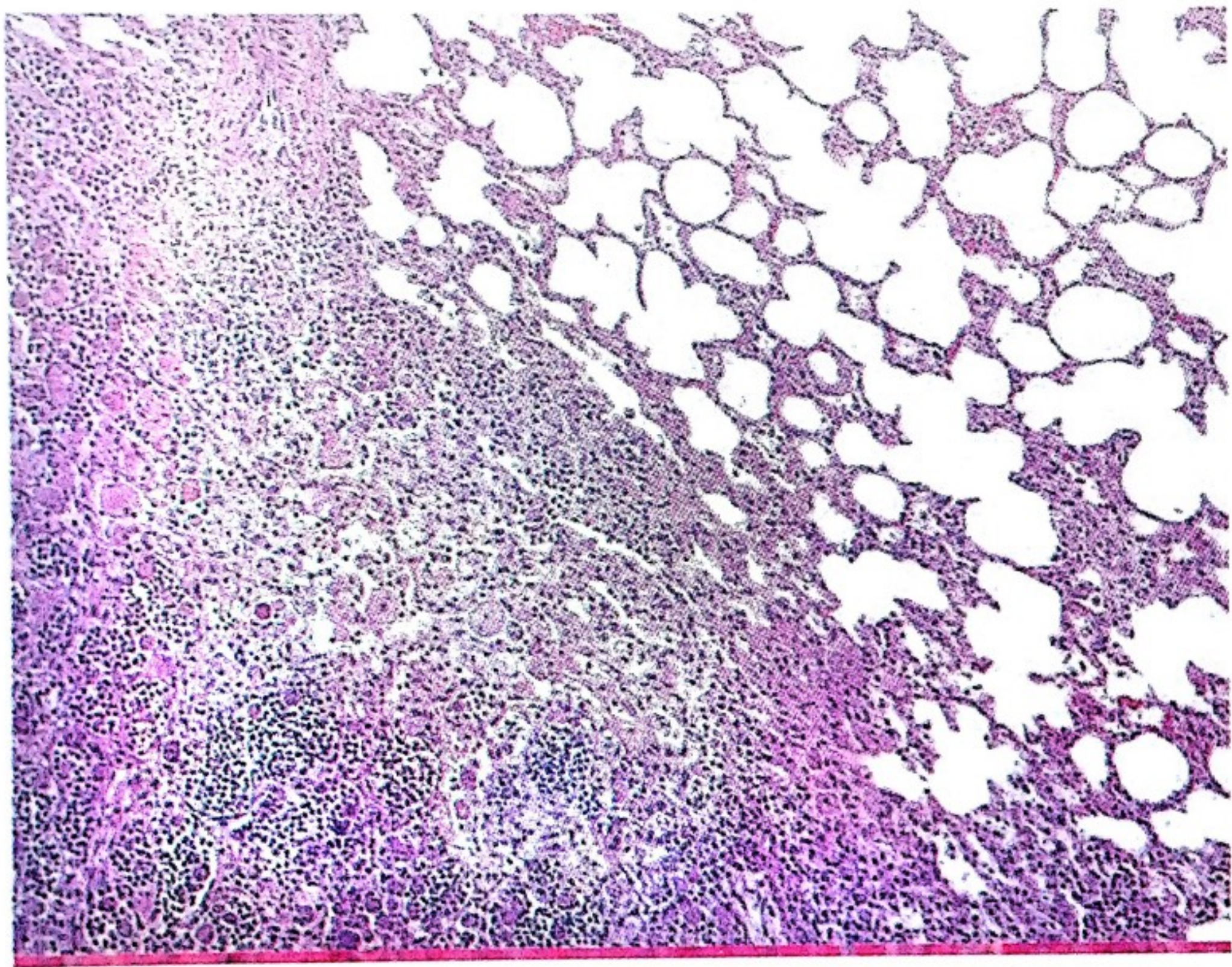
Micro: Coagulative necrosis of the epithelium
lining of renal tubules



✓

IBR (respiratory form)

- Organ: lung
- Stain: H&E
- Disease: IBR
- Micro: broncho-pneumonia represented by neutrophils, macrophages and giant cells are filled the alveoli



✓

IBR (genital form IPV)

the vaginal mucus membrane showed multiple pustules.



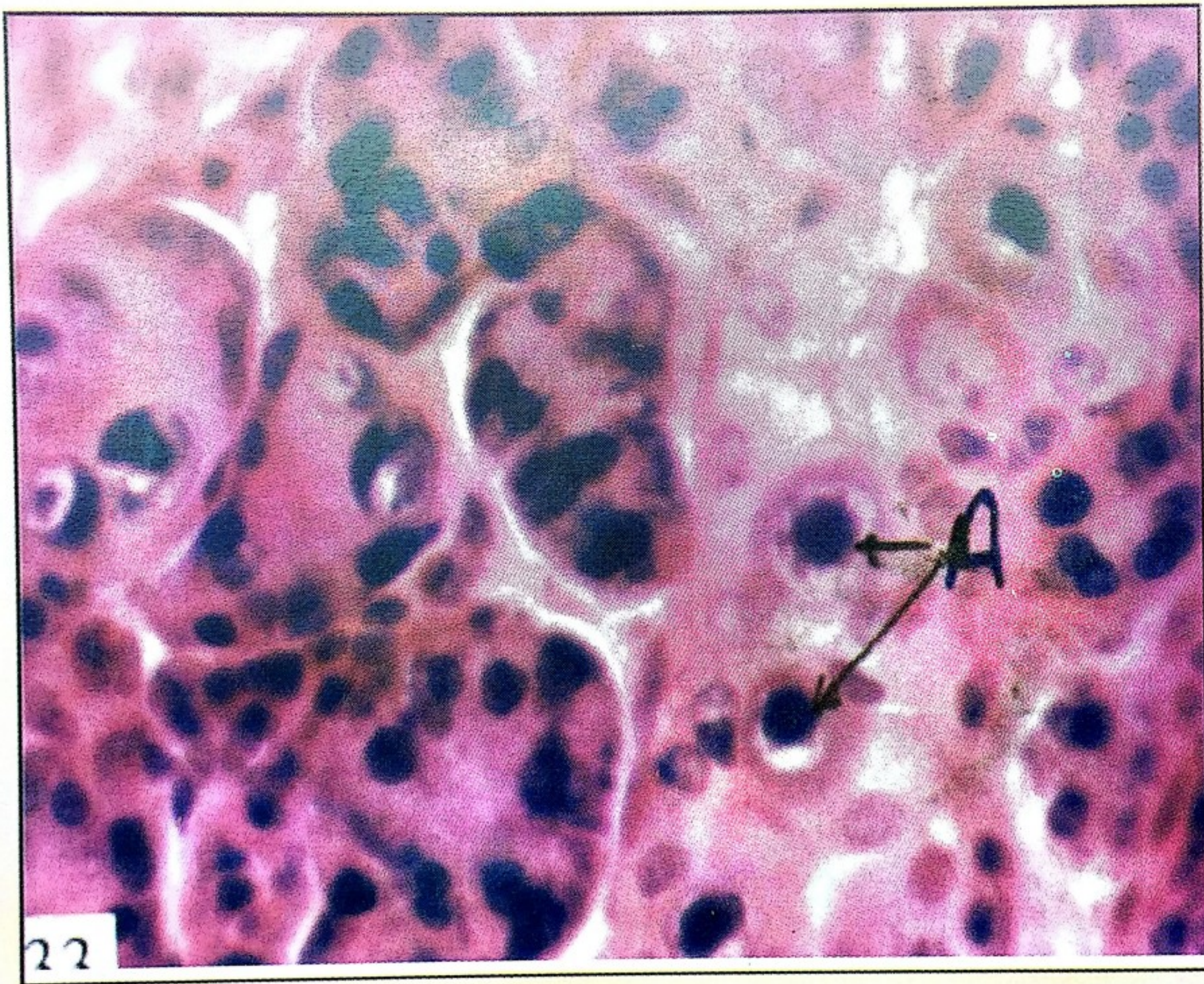
✓

Cytomegalic Inclusion Disease

- **Organ : Parotid Salivary gland**
- **(Guinea pig).**
- **Stain :H & E.**
- **Disease: Cytomegalic Inclusion Disease**

Micro : Large basophilic intranuclear inclusion bodies (A) are seen in the epithelial lining of the ducts of the serous salivary glands.

Laboratory Gland



22

✓

حصى الحبيبة

Malignant catarrhal fever

Disease: MCF

**Macro: massive erosions in buccal mucosa
and tongue**



Malignant catarrhal fever

Disease: MCF

**Macro: Enlarges and congested liver with
grayish white area (necrosis)**



Malignant catarrhal fever

Disease: MCF

**Macro: Enlarges and congested kidney with
grayish white area (necrosis)**



MvV

✓

Malignant catarrhal fever

Disease: MCF

**Macro: Enlarges and congested lymph node
in compare with normal one**



7

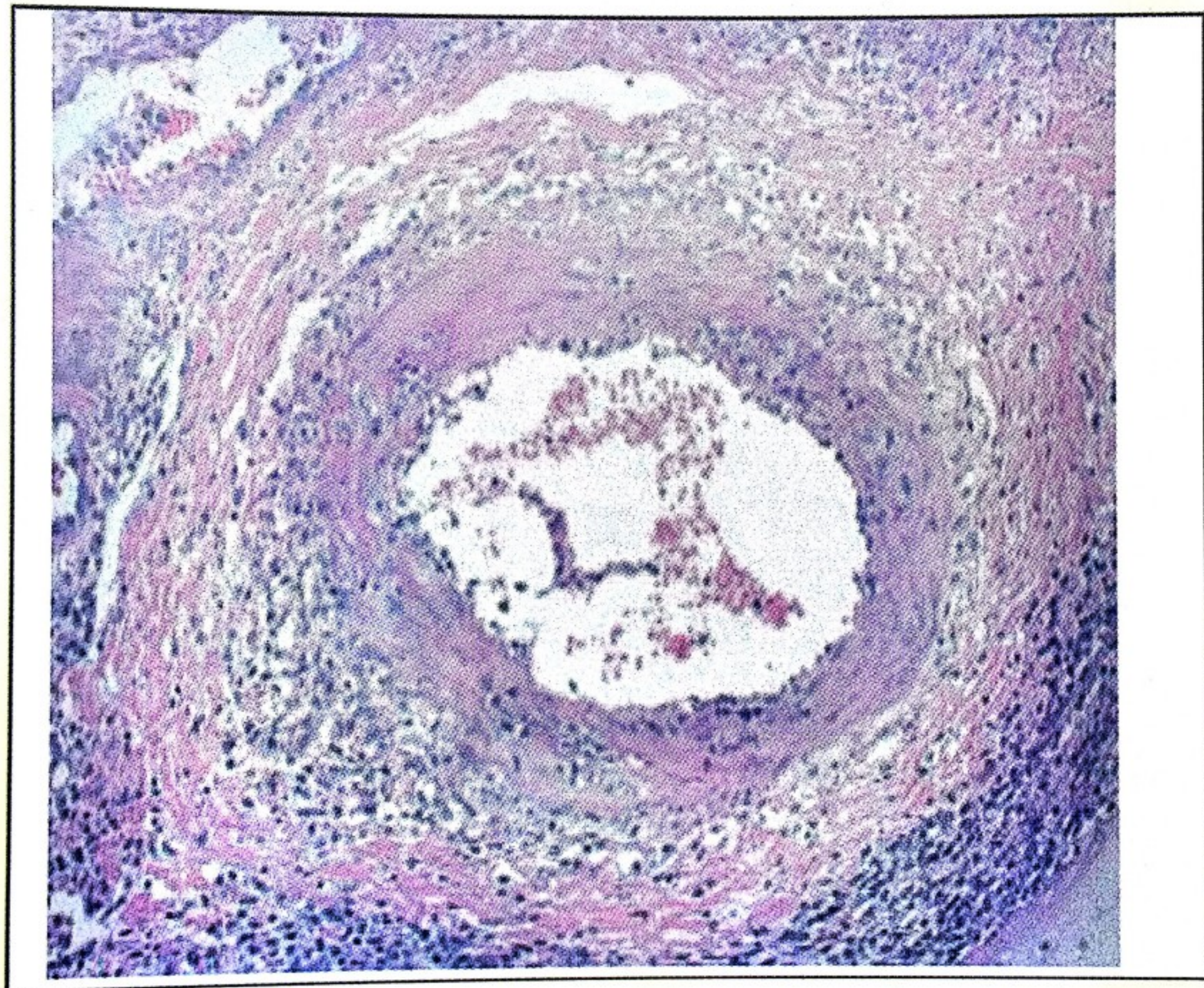
MCF

Disease: MCF

Stain: H&E

Organ: Blood vessels

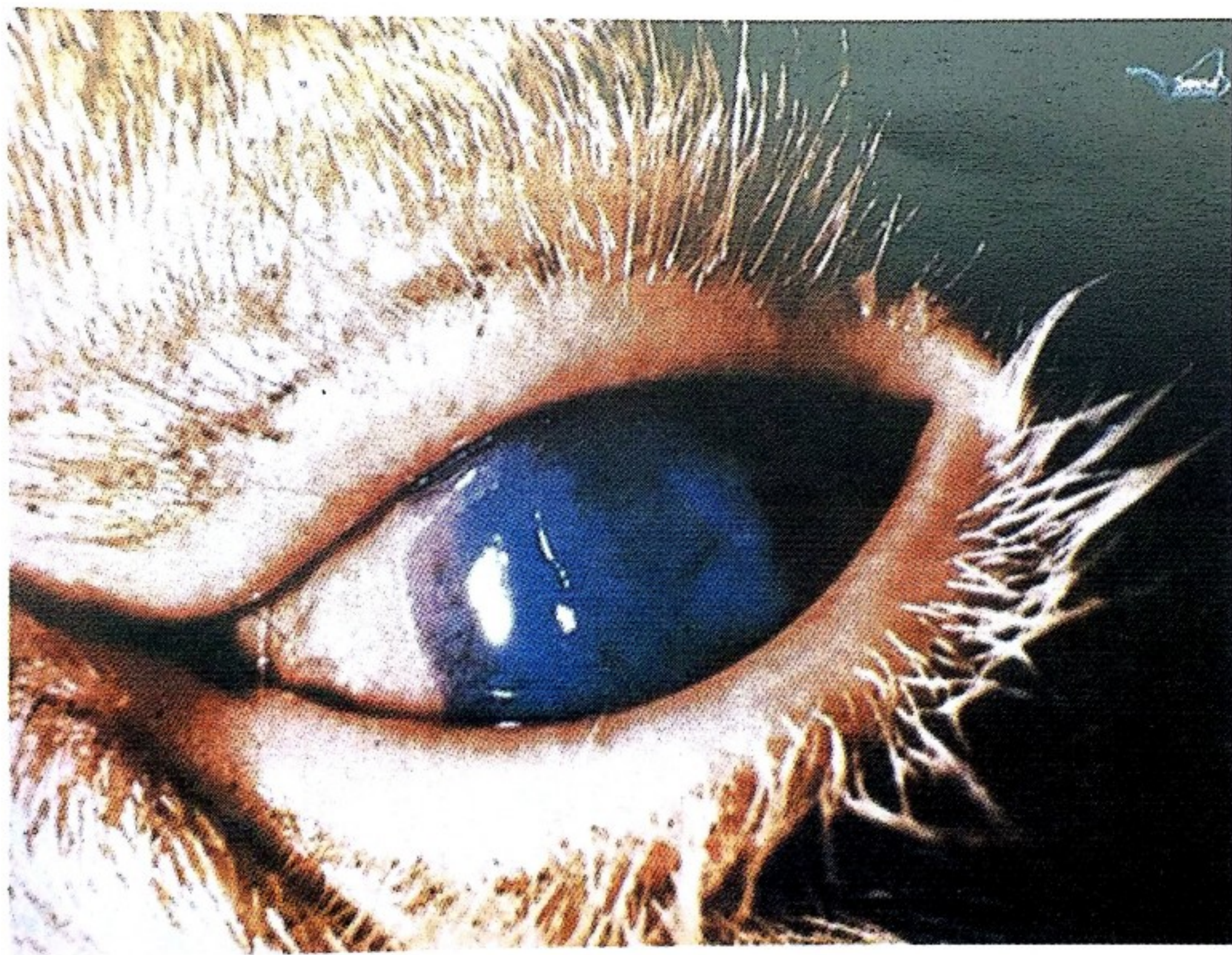
Micro: Lymphocytic vasculitis characterized by
infiltration of blood vessels with round cells



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Malignant catarrhal fever

**corneal opacity, conjunctivitis
and the reddening of the eye**



IBR (genital form IPV)

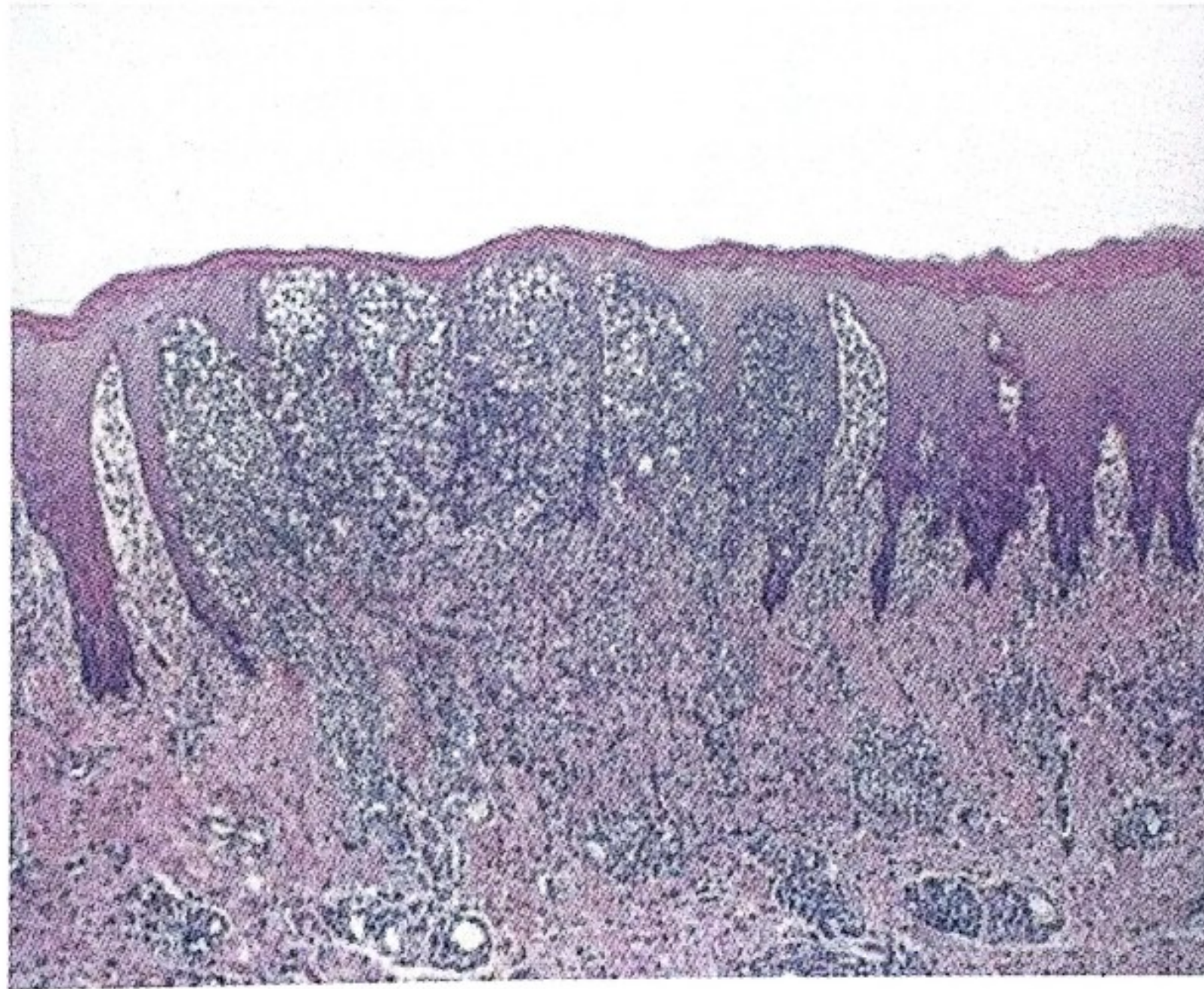
the vaginal mucus membrane showed
multipule pustules.



Malignant Catarrhal Fever

- Organ: skin
- Stain: H&E
- Disease: MCF
- Micro: Lymphocytic aggregation in the dermal tissue.

Malignant Catarrhal Fever



Malignant Catarrhal Fever

- Organ: Brain
- Stain: H&E
- Disease: MCF
- Micro: peri-vascular cuffing of a cerebral blood vessel with lymphocytes.

Malignant Catarrhal Fever



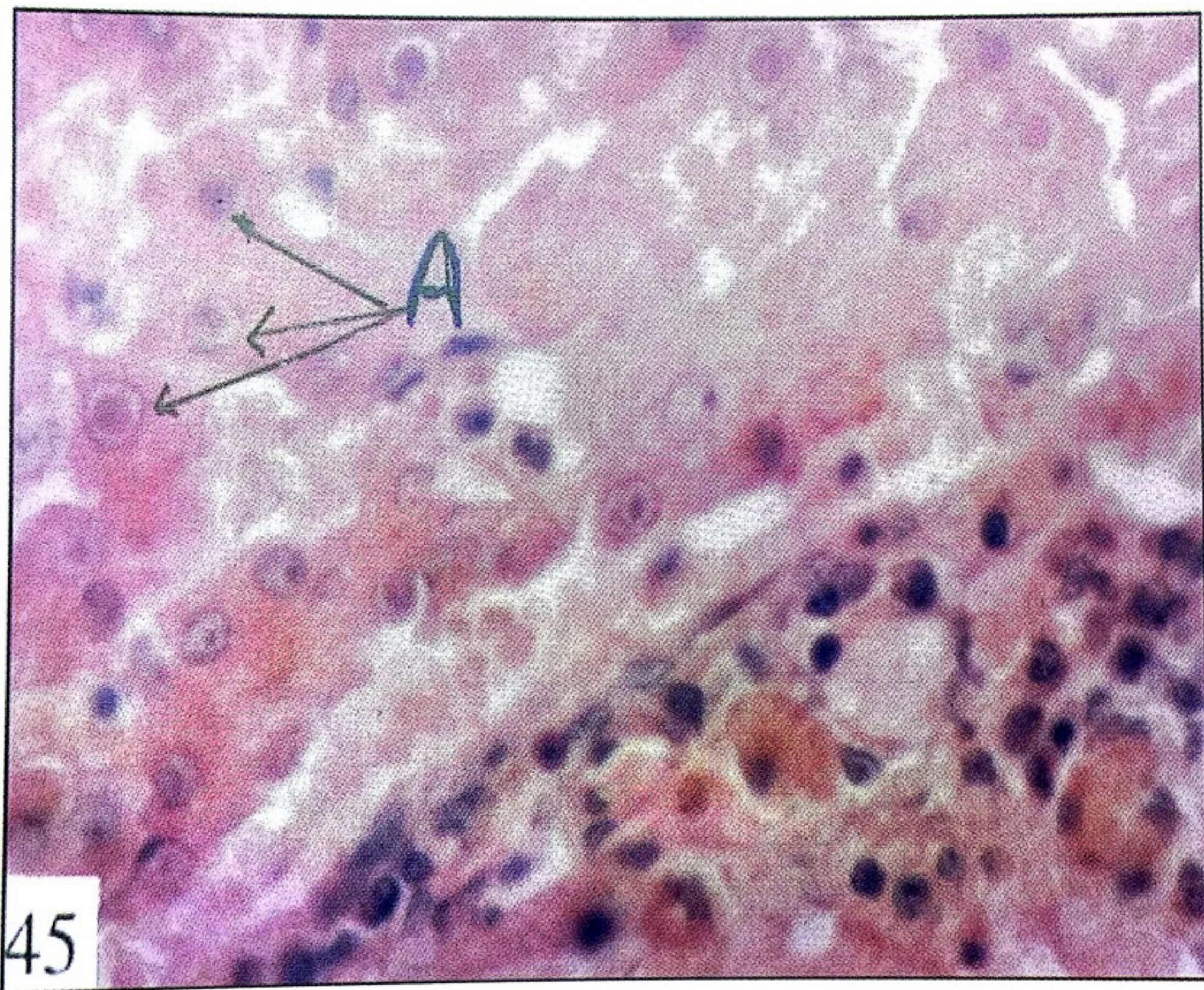
IBR (abortion form)

Aborted autolysed fetus of IBR



Infectious canine hepatitis

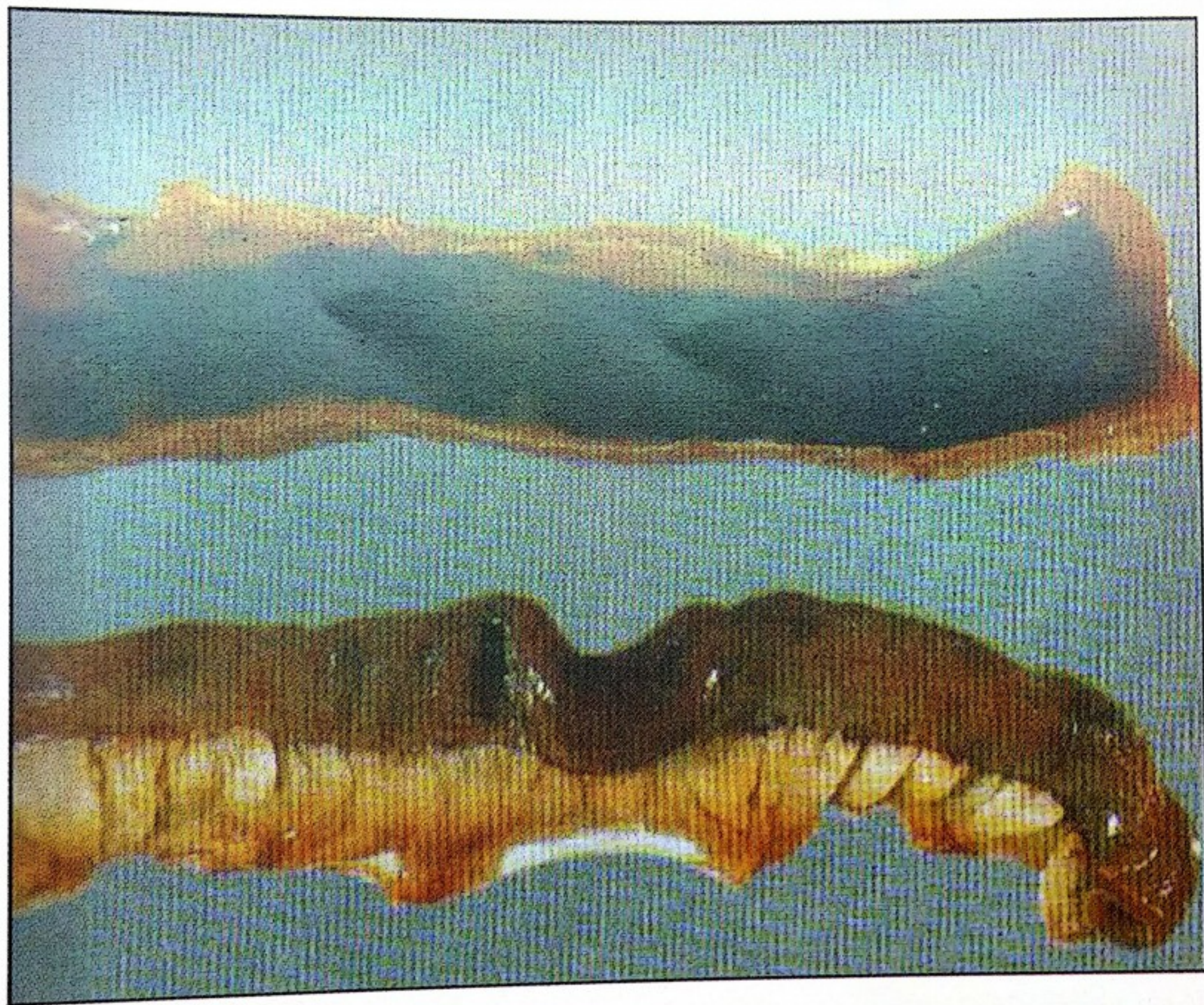
- **Organ : Liver (Dog).**
- **Stain : H & E.**
- **Disease: Infectious Canine Hepatitis**
- **Micro : Large basophilic intranuclear inclusion bodies (A) are seen in the hepatocytes besides lymphocytic infiltration in the portal tracts and necrotic hepatic cells.**



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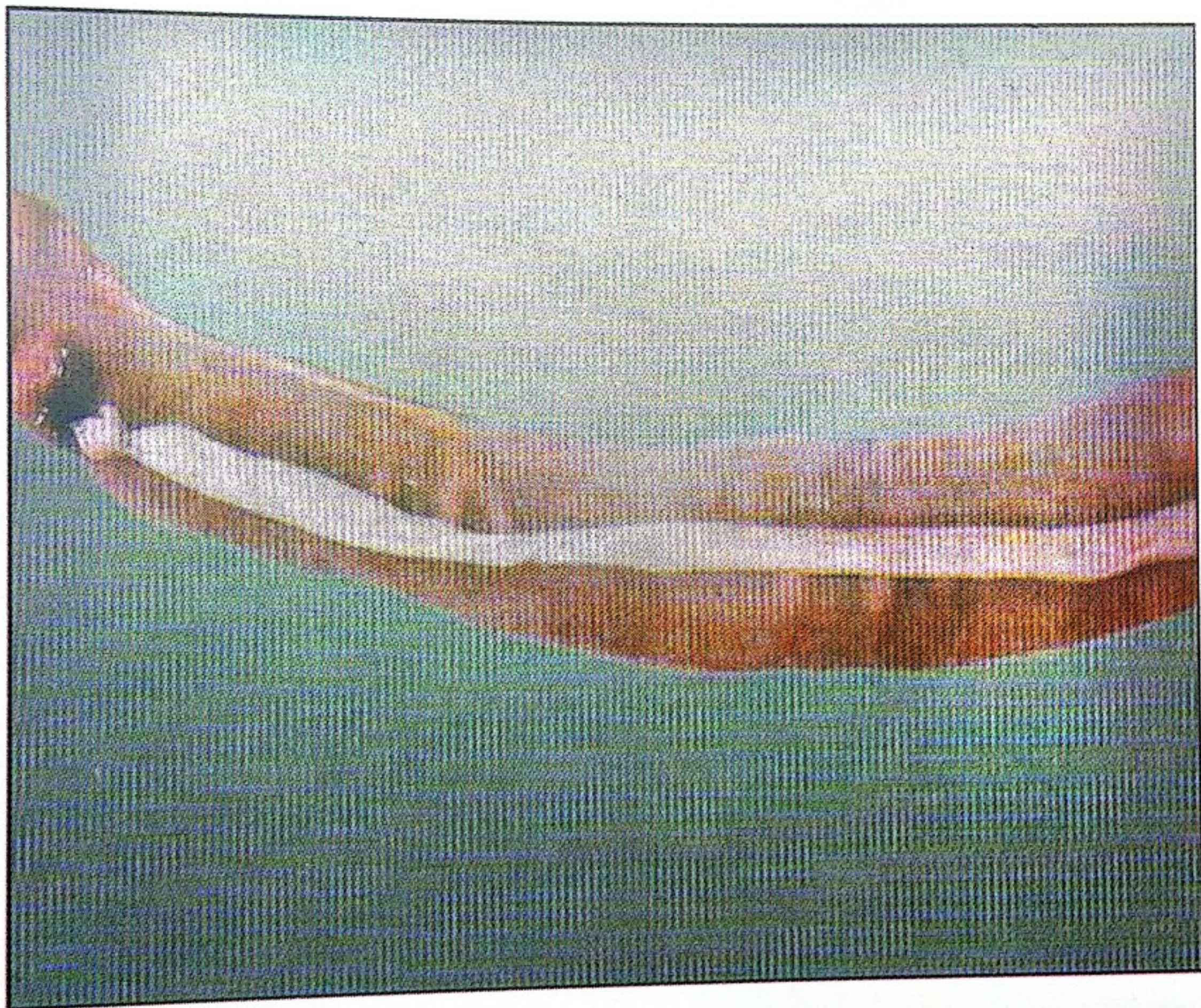
Parvovirus

- **Organ: Intestine.**
- **Disease: Parvovirus infection .**
- **Lesion: Hemorrhagic enteritis.**
- **Macro: Severe redness of mucosa as result of active hyperemia and hemorrhage. Free blood in the lumen. Irregular serosal surface which also is hyperemic.**



Parvovirus infection

- **Organ: Intestine.**
- **Disease: Parvovirus infection.**
- **Lesion: a acute fibrinous enteritis.**
- **Macro: Redness caused by active hyperemia. A yellowish fibrin cast on the mucosal surface.**



Foot and mouth disease

- Cow showing excessive salivation with smucky sound



Foot and mouth disease

- Bovine heart showing longitudinal grayish (tigroid heart) streaks in myocardium



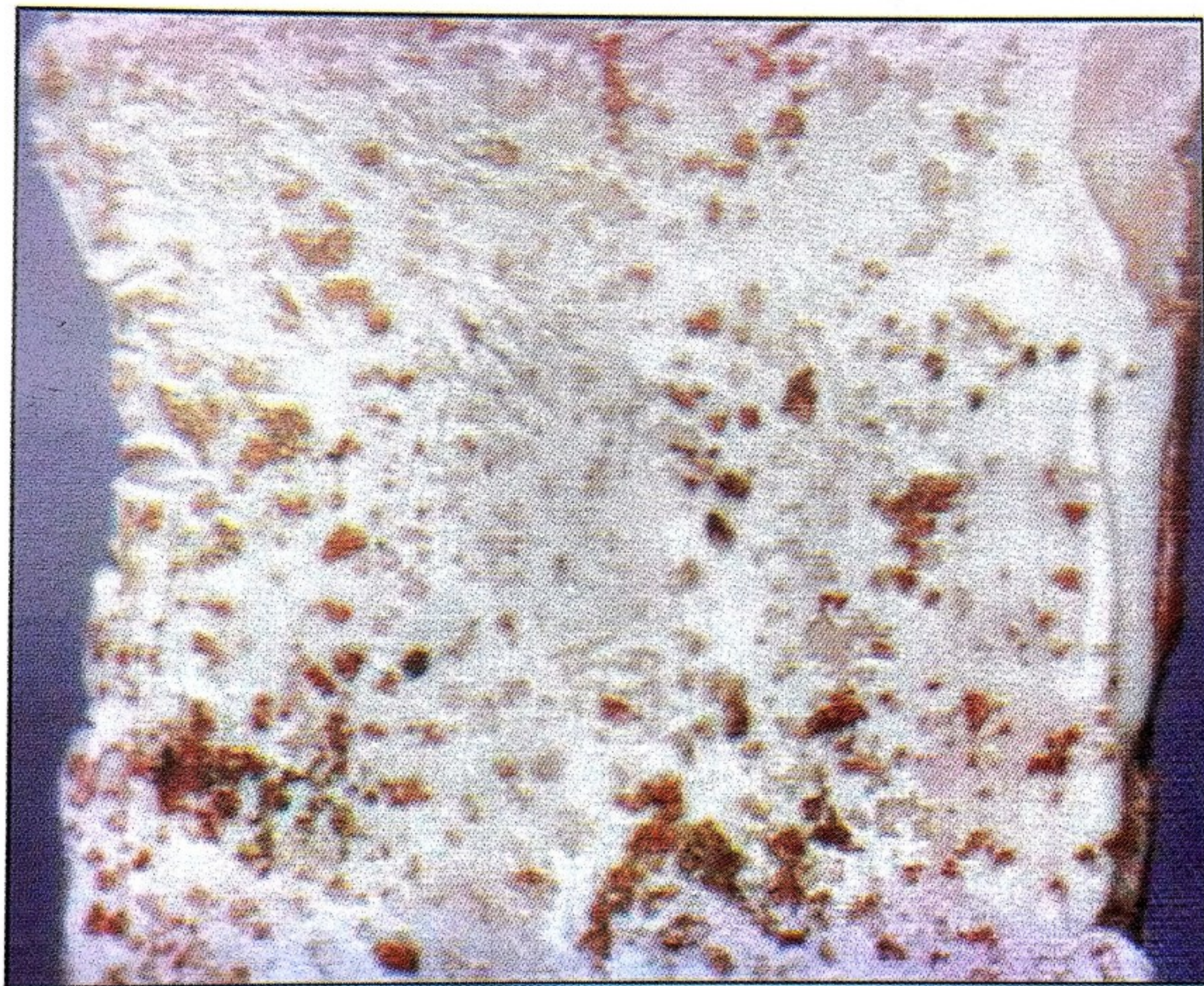
BVD

- **Organ: Hard palate**
- **Disease: Bovine viral diarrhea.**
- **Lesion: Erosive and ulcerative stomatitis**
- **Macro: loss of lining epithelium of hard palate and appears as red area.**



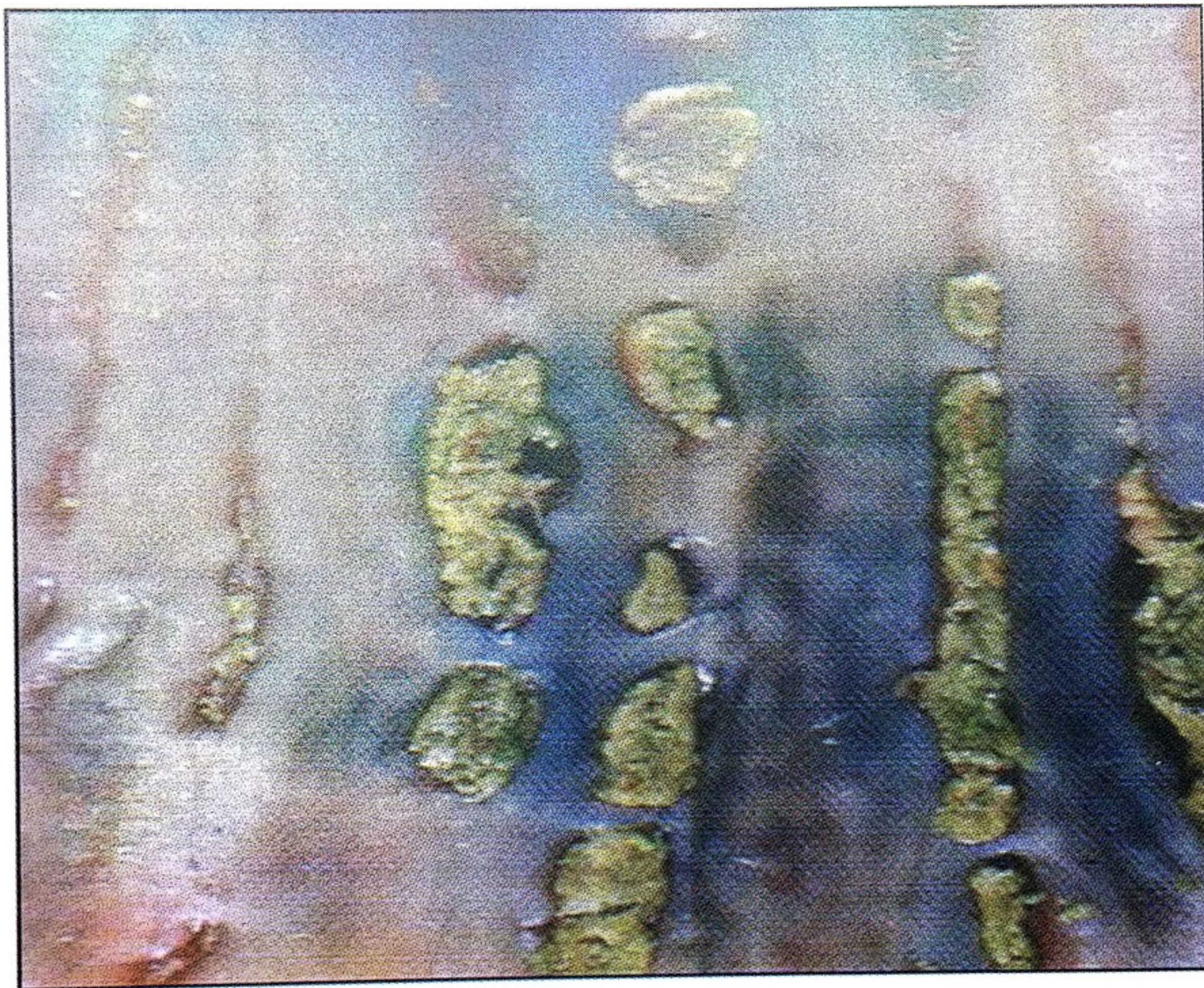
BVD

- **Organ: esophagus.**
- **Disease: Bovine viral diarrhea.**
- **Macro: presence of multiple variably sized and variably shaped esophageal mucosal ulcers caused by pestivirus of BVD.**



BVD

- **Organ: esophagus.**
- **Disease: Bovine viral diarrhea.**
- **Macro: presence of multiple variably sharply demarcated ulcers (vertically linear and red streaks) and similar areas covered by diphtheritic membrane appears as yellowish to brown streaks) caused by pestivirus of BVD.**



BVD

- **Organ: Ileum.**
- **Disease: Bovine viral diarrhea.**
- **Macro: presence of necrosis of peyer s patches and overlying epithelium, mucosa becomes intensely hemorrhagic and covered by suppurative exudate caused by pestivirus of BVD.**



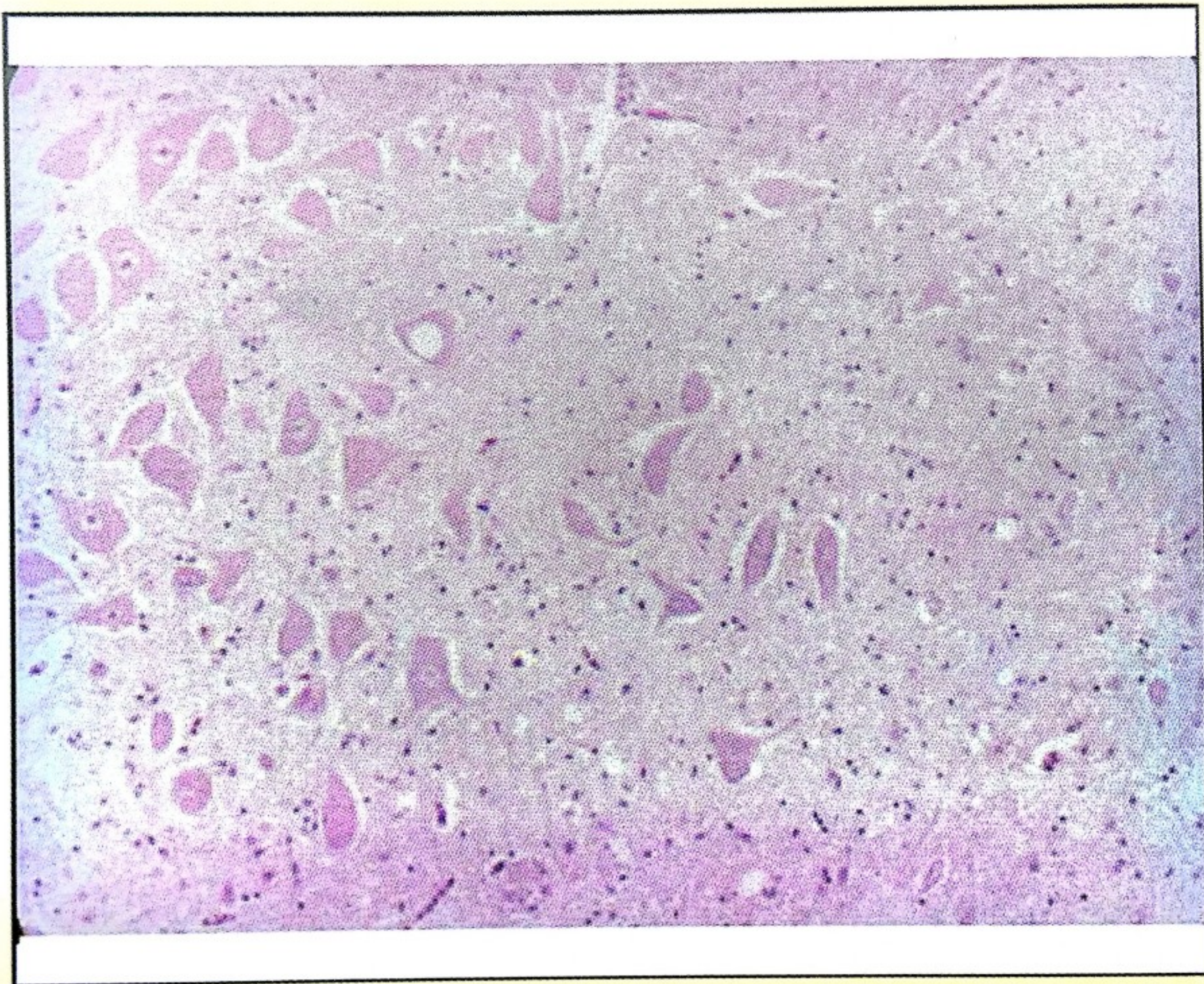
BVD

- **Organ: colon.**
- **Disease: Bovine viral diarrhea.**
- **Macro: presence of multiple circumscribed ulcers in colon mucosa with intensely hyperemic edges caused by pestivirus of BVD.**



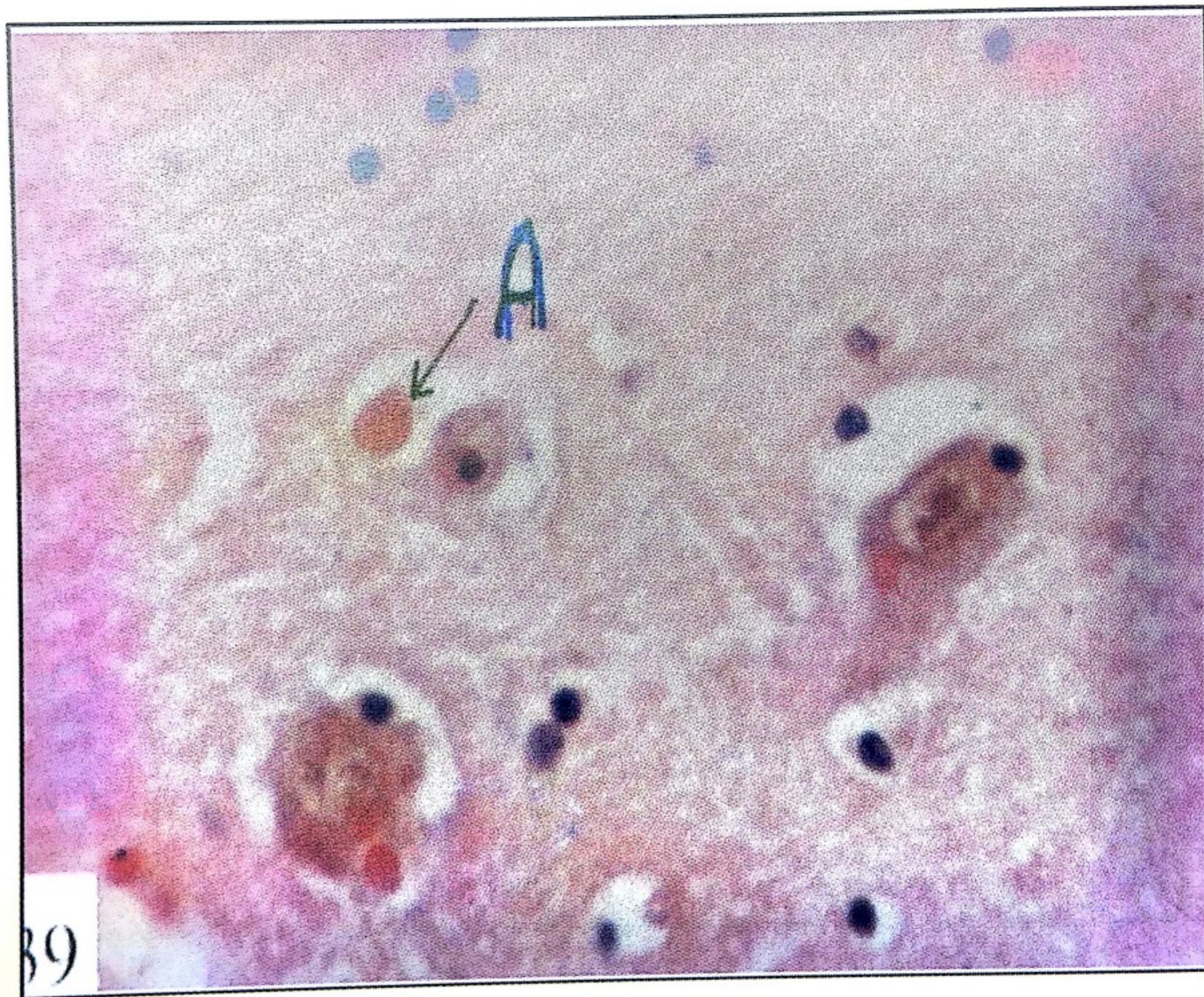
Bovine spongiform encephalopathy

- **Organ : Brain (hypothalamus)**
- **Stain : H & E.**
- **Disease: BSE**
- **Micro : Large single or multiple vacuole is present in neuron**



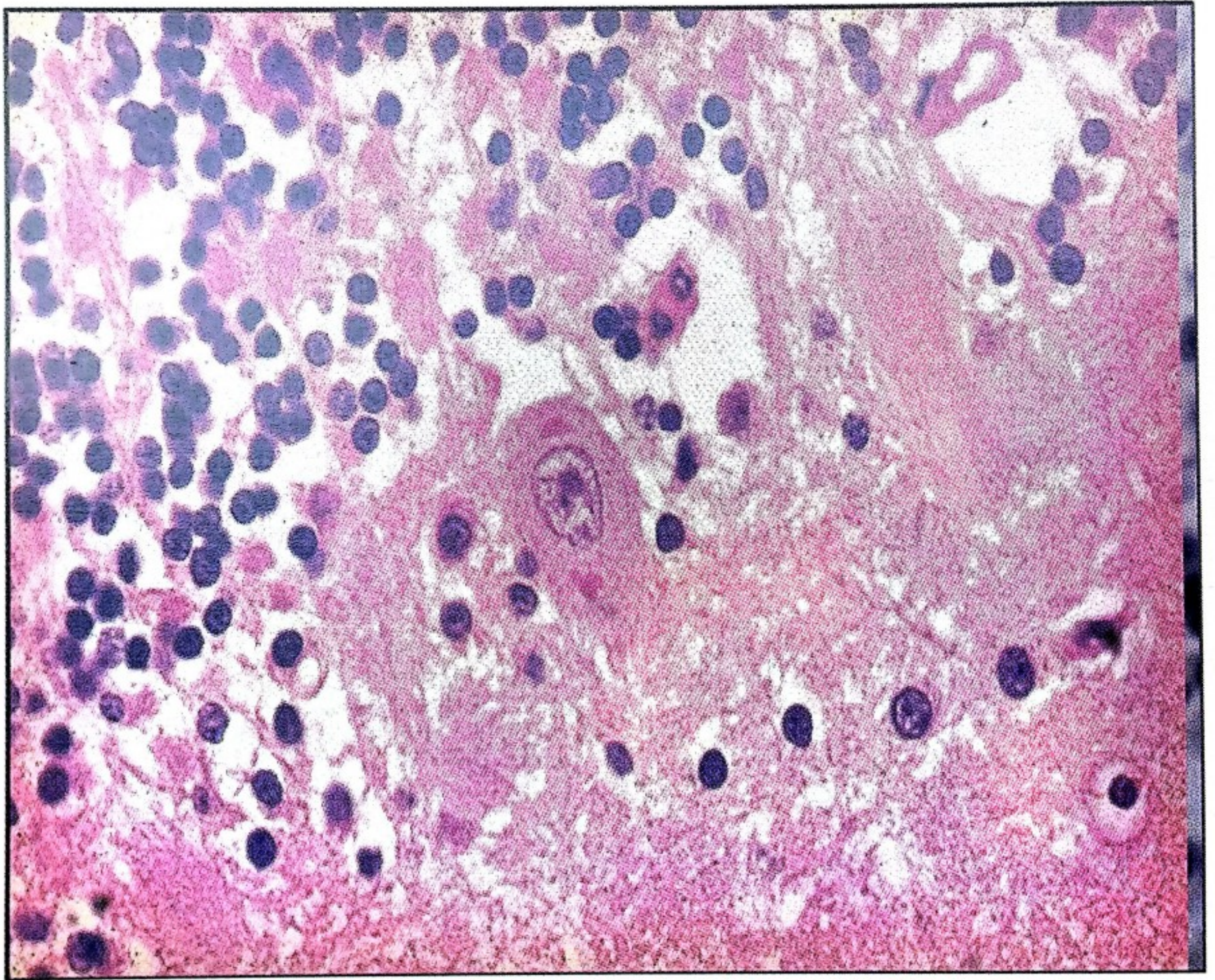
Rabies

- **Organ : Brain (Hippocampus)**
- **Stain : H & E.**
- **Disease: Rabies.**
- **Micro : Intracytoplasmic inclusion bodies (A) are seen in the neurons.**



Rabies

- **Organ : Brain (Cerebellum) .**
- **Stain : H & E.**
- **Disease: Rabies.**
- **Micro : Intracytoplas- mic inclusion bodies (A), Negri bodies, in the cytoplasm of Purkinjie cells with edema**



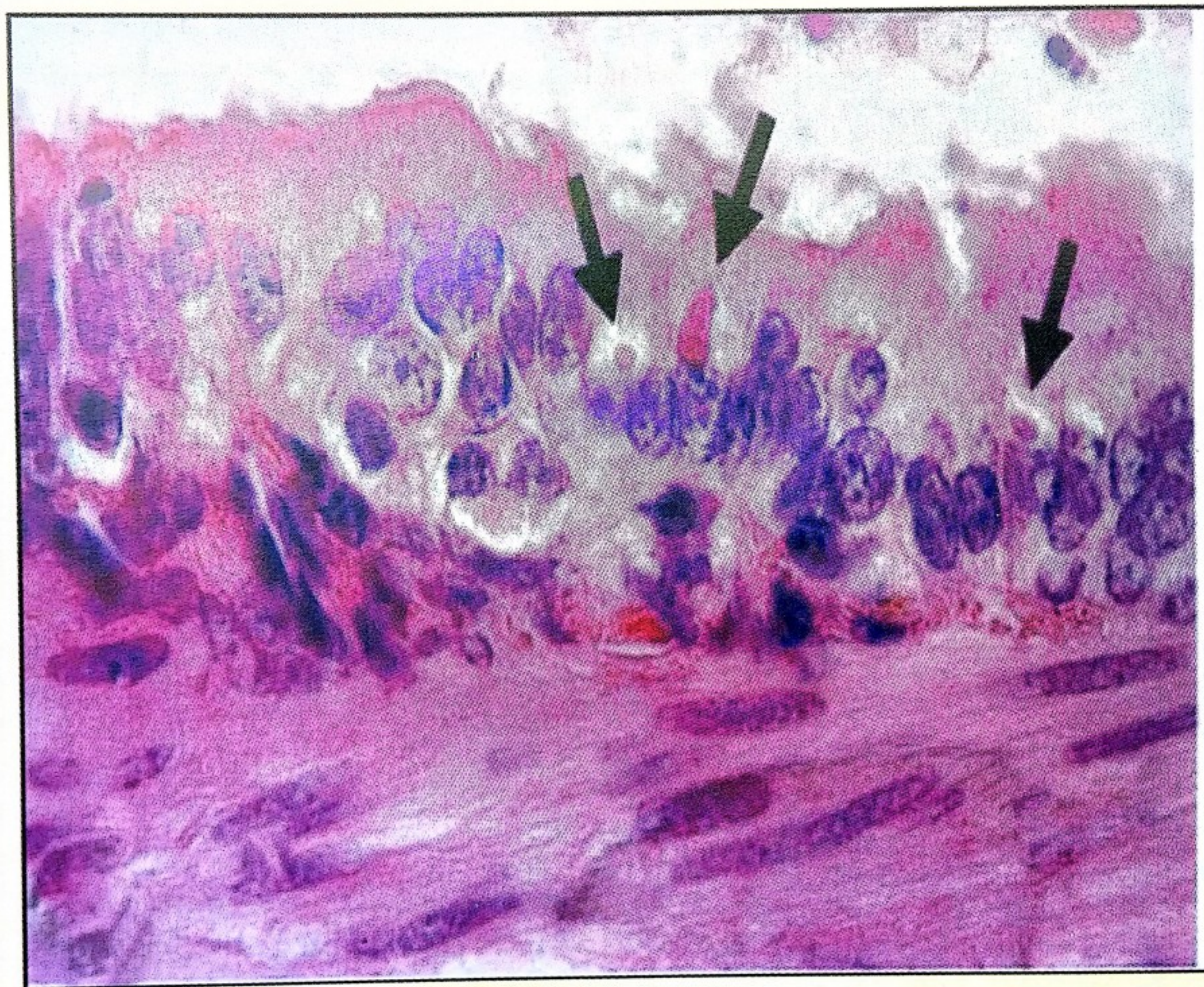
Canine distemper

- **Organ : Lung (Bronchus)**

- **Stain :H & E.**

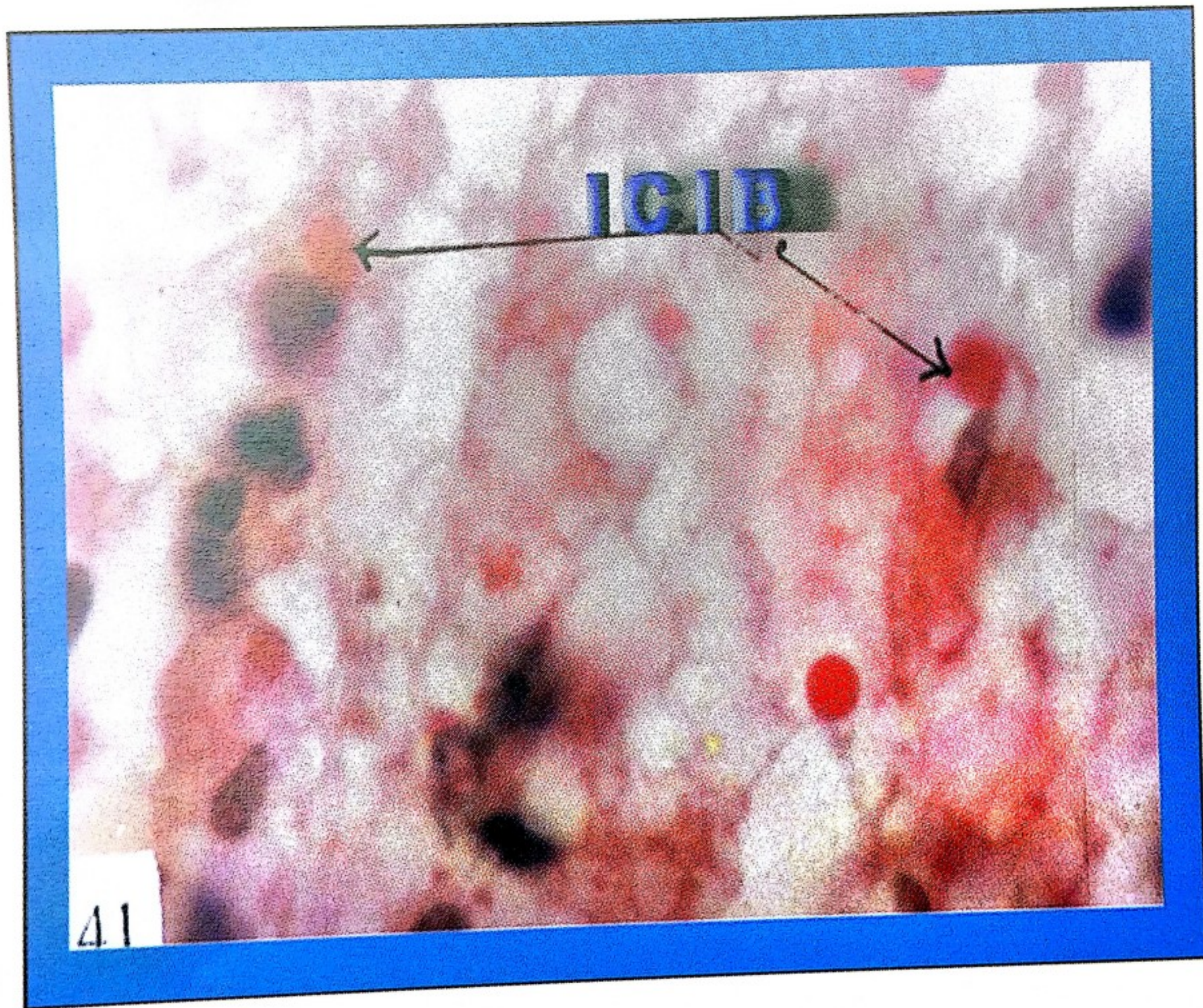
- **Disease: Canine distemper**

Micro : Intracytoplasmic eosinophilic inclusion bodies in the bronchiolar epithelium. :



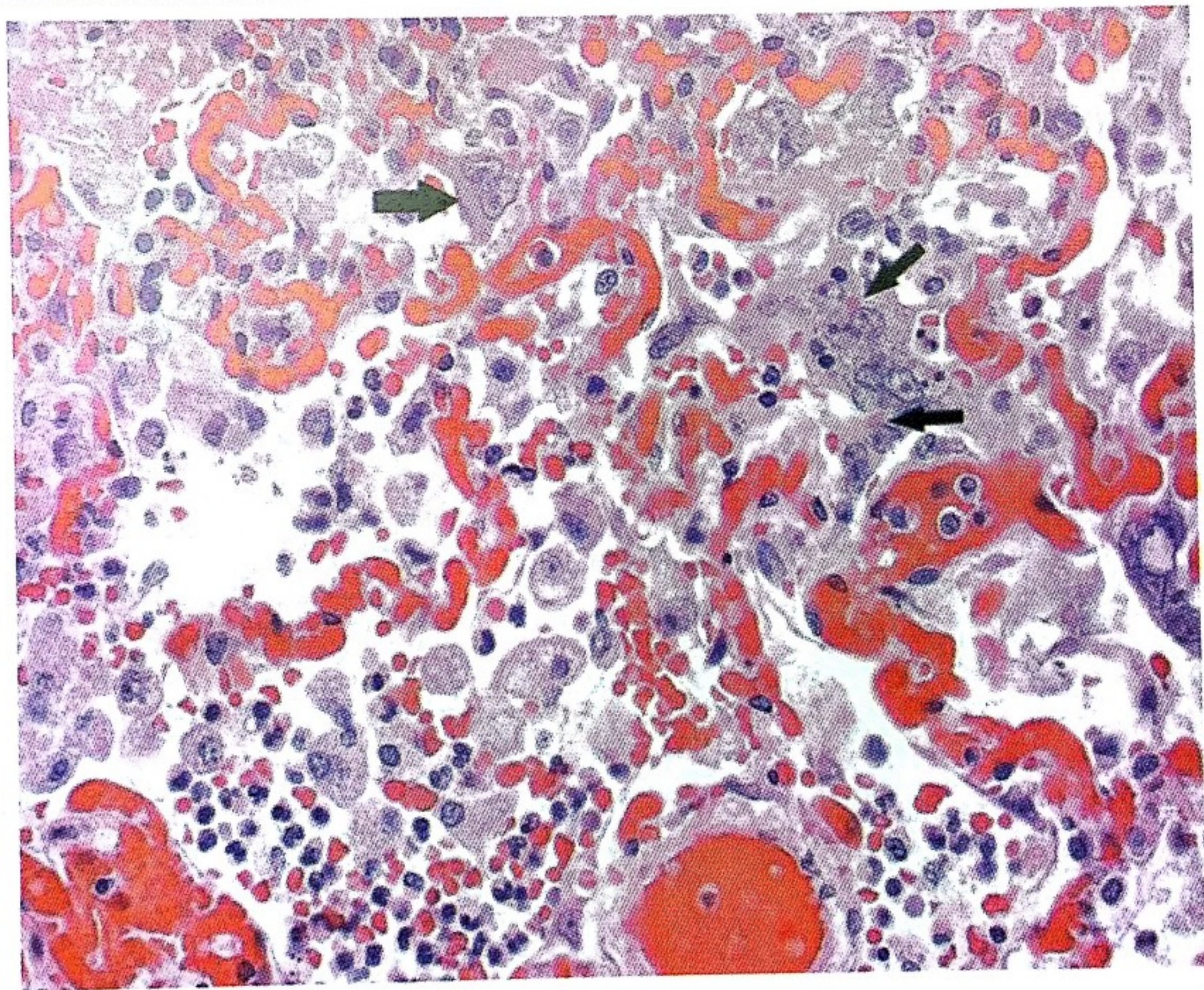
Canine distemper

- **Organ : Cerebellum (Dog).**
- **Stain : H & E.**
- **Disease: Canine distemper**
- **Micro : intranuclear inclusion bodies in the gemistocytes**



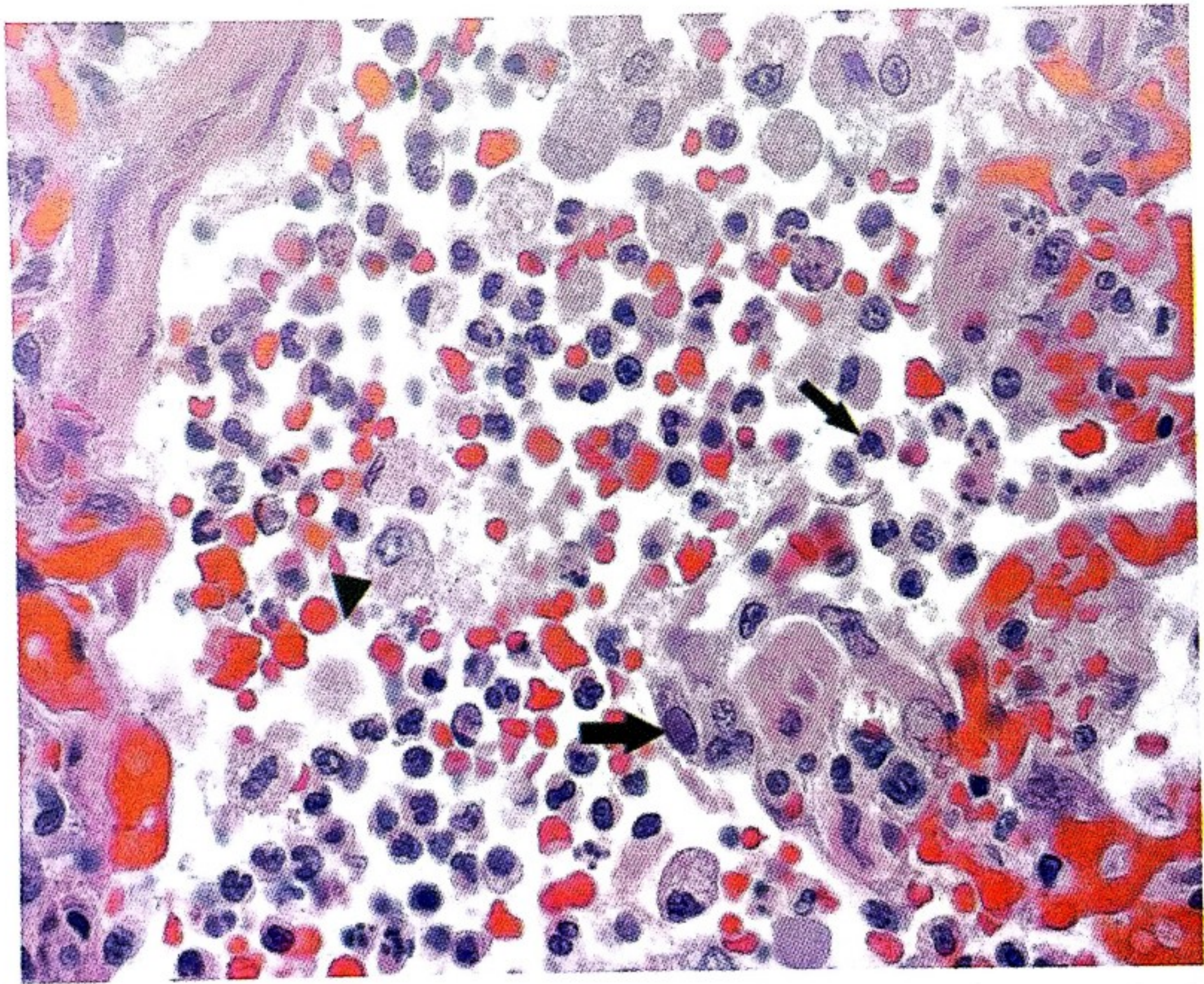
Canine distemper

- **Organ : Lung.**
- **Stain : H & E.**
- **Disease: Canine distemper**
- **Micro** the syncytial cells (thick arrow) formed by viral-induced fusion of epithelial cells.
Intracytoplasmic viral inclusion bodies (thin arrows) are present within some syncytial cells



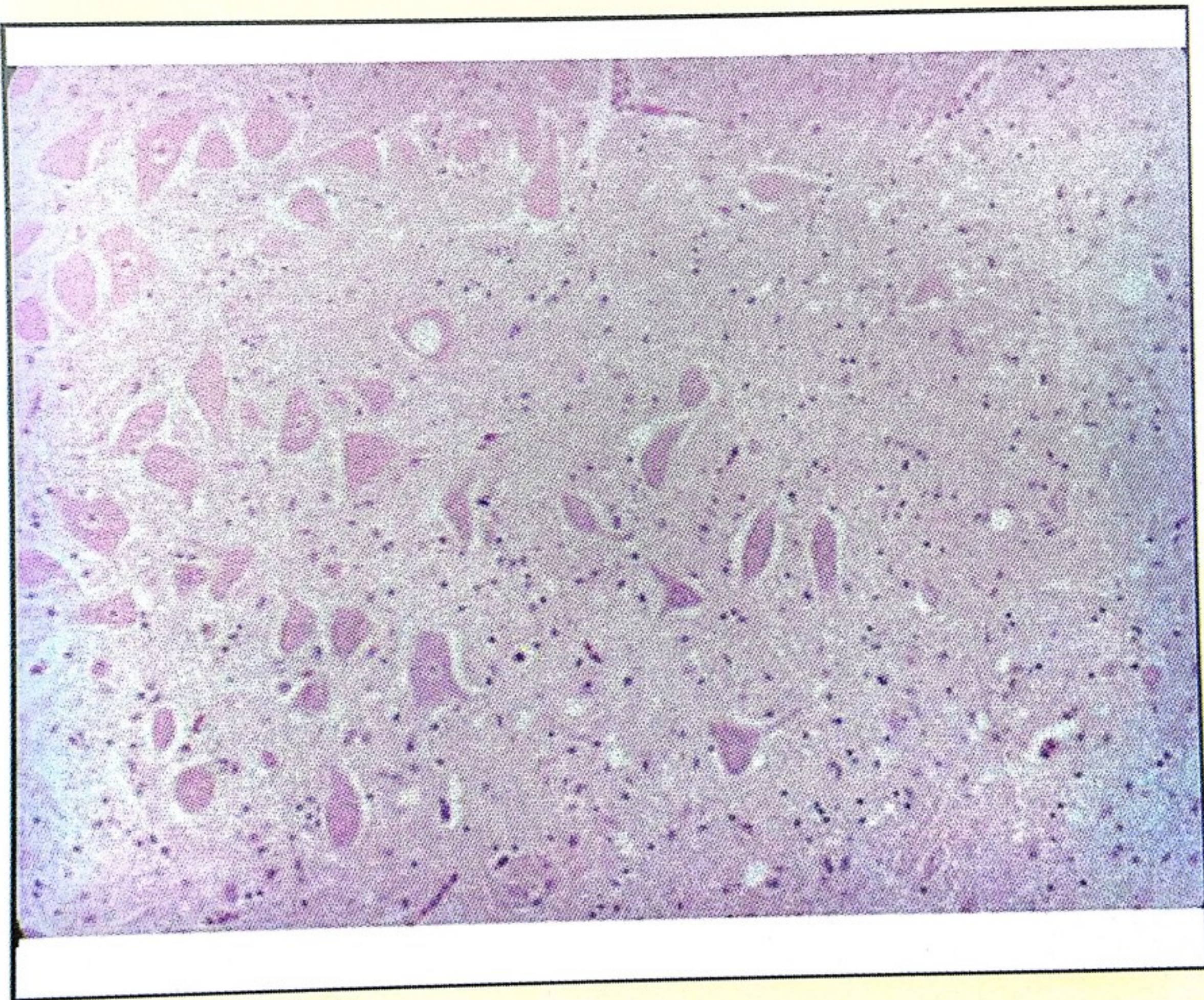
Canine distemper

- **Organ : Lung.**
- **Stain : H & E.**
- **Disease: Canine distemper**
- **Micro** Another high magnification view, showing an intranuclear inclusion body (thick arrow). Alveolar spaces contain many neutrophils (thin arrow) and fewer macrophages (arrowhead).)



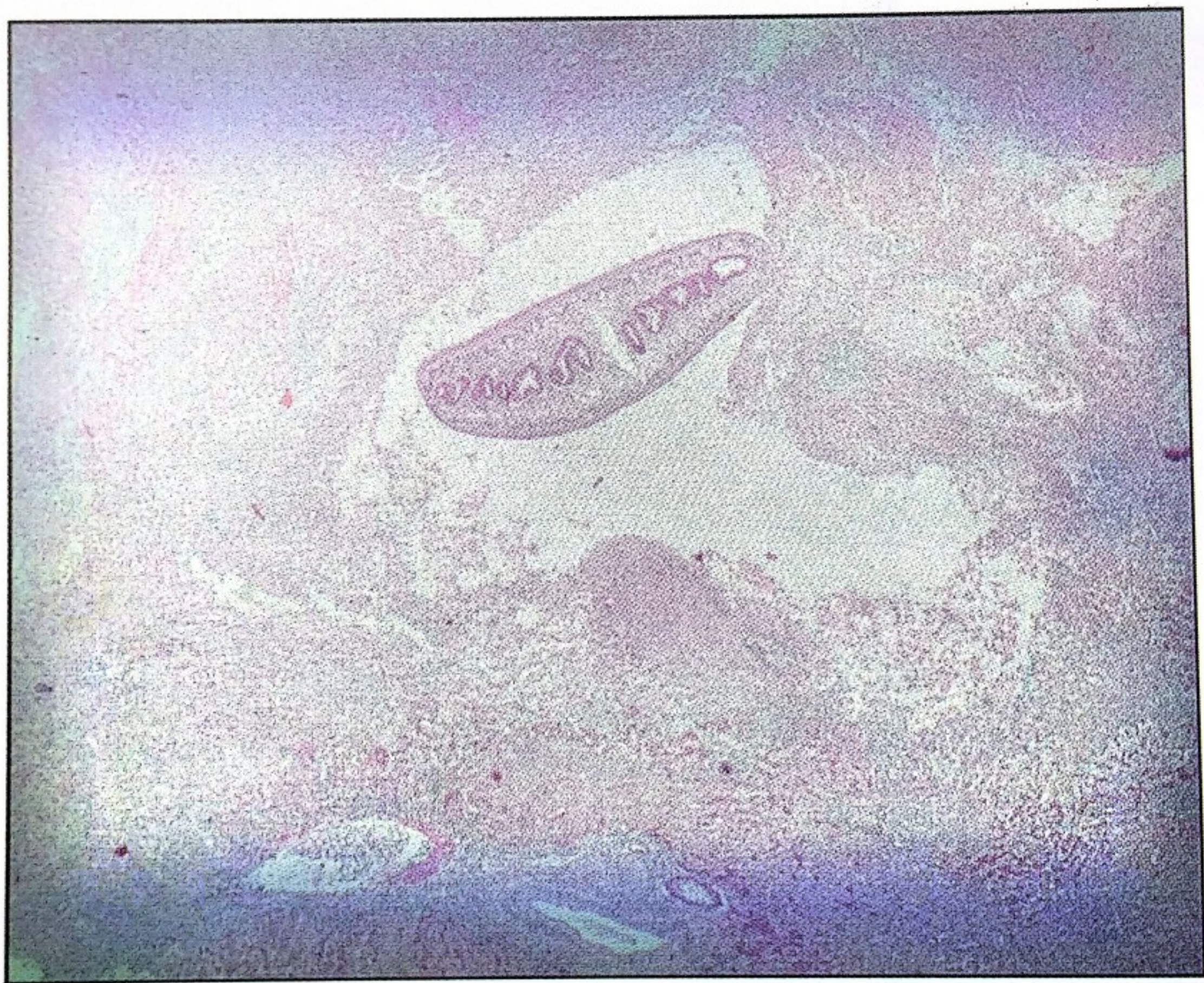
Bovine spongiform encephalopathy

- **Organ : Brain (hypothalamus)**
- **Stain : H & E.**
- **Disease: BSE**
- **Micro : Large single or multiple vacuole is present in neuron**



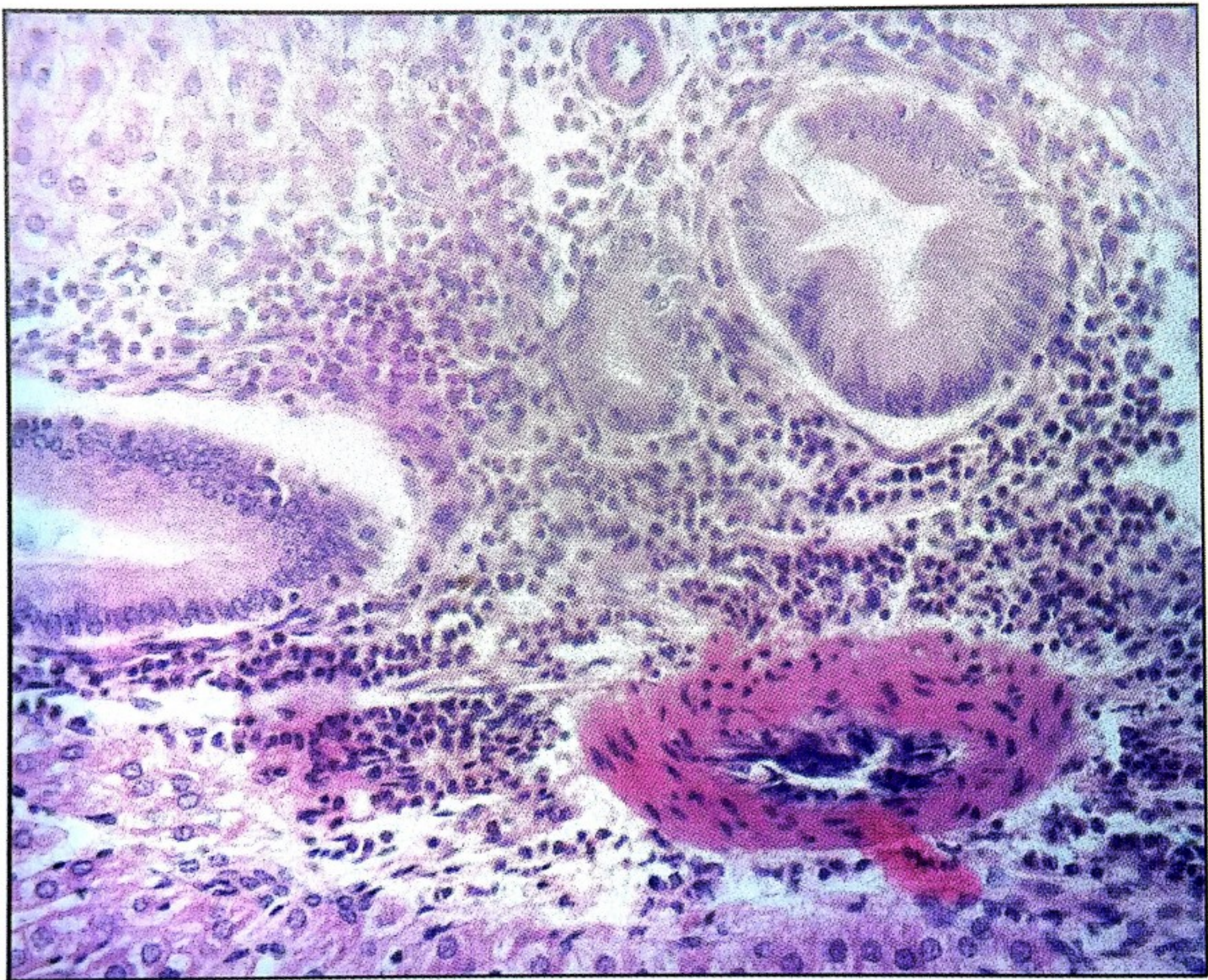
Fascioliasis (Hepatic distomiasis)

- **Organ: liver**
- **Disease: Fascioliasis**
- **Stain: H&E**
- **Micro: migratory hepatic fluke
displacing and severely destructive for
hepatic parenchyma.**



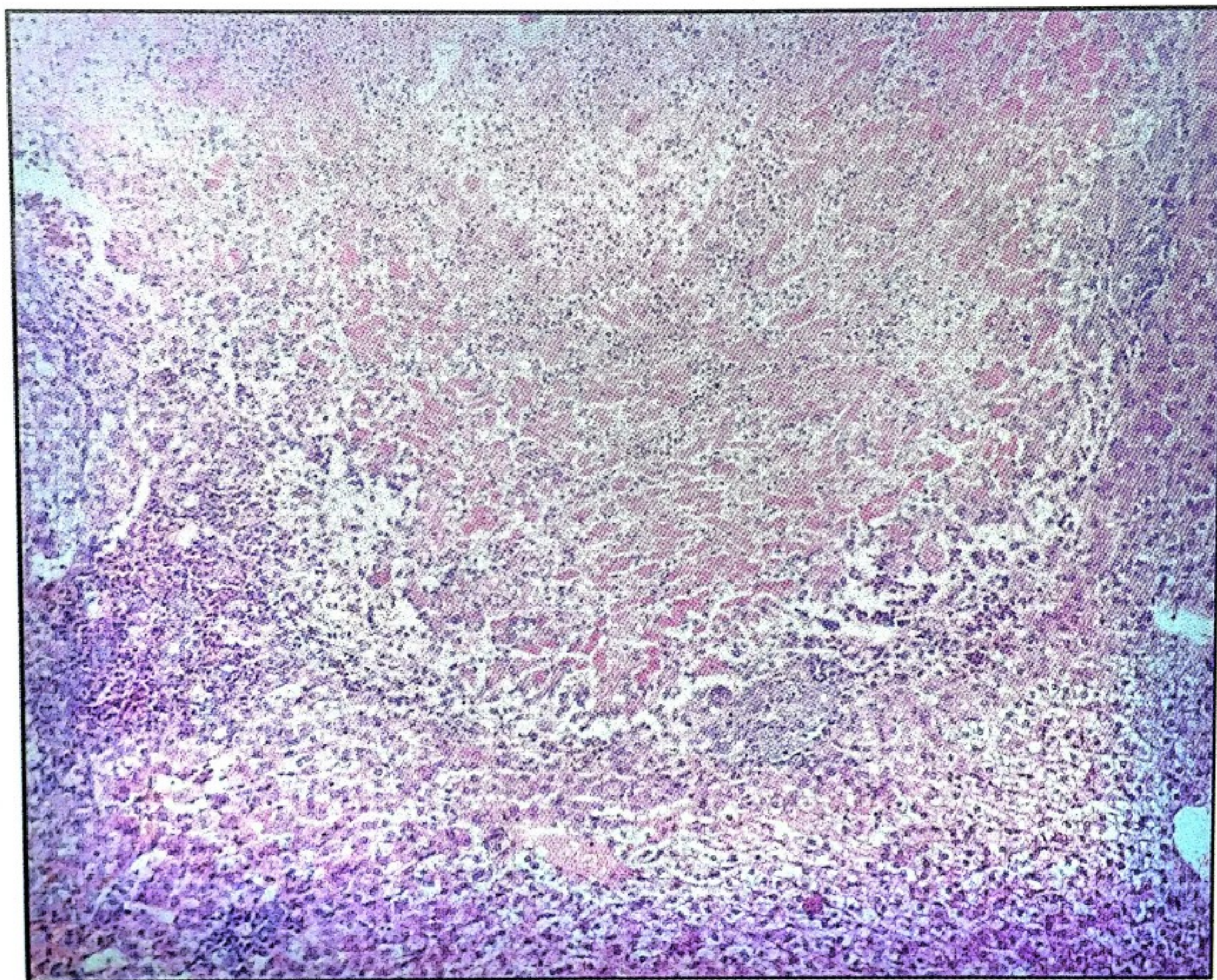
Fascioliasis (Hepatic distomiasis)

- **Organ: liver**
- **Disease: Fascioliasis**
- **Stain: H&E**
- **Micro: portal area showing eosinophilic and mononuclear infiltration, hyperplasia of epithelium lining of bile duct and newly formed bile ductule. Severe periductal fibrosis.**



Fascioliasis (Hepatic distomiasis)

- **Organ: liver**
- **Disease: Fascioliasis**
- **Stain: H&E**
- **Micro: Hepatic parenchyma showing early migratory track represented by severe necrosis and presence of fibrin threads due to migration of immature stages of fasciola hepatica.**



Spirocercosis

Disease: Spirocercosis

Organ: Esophagus

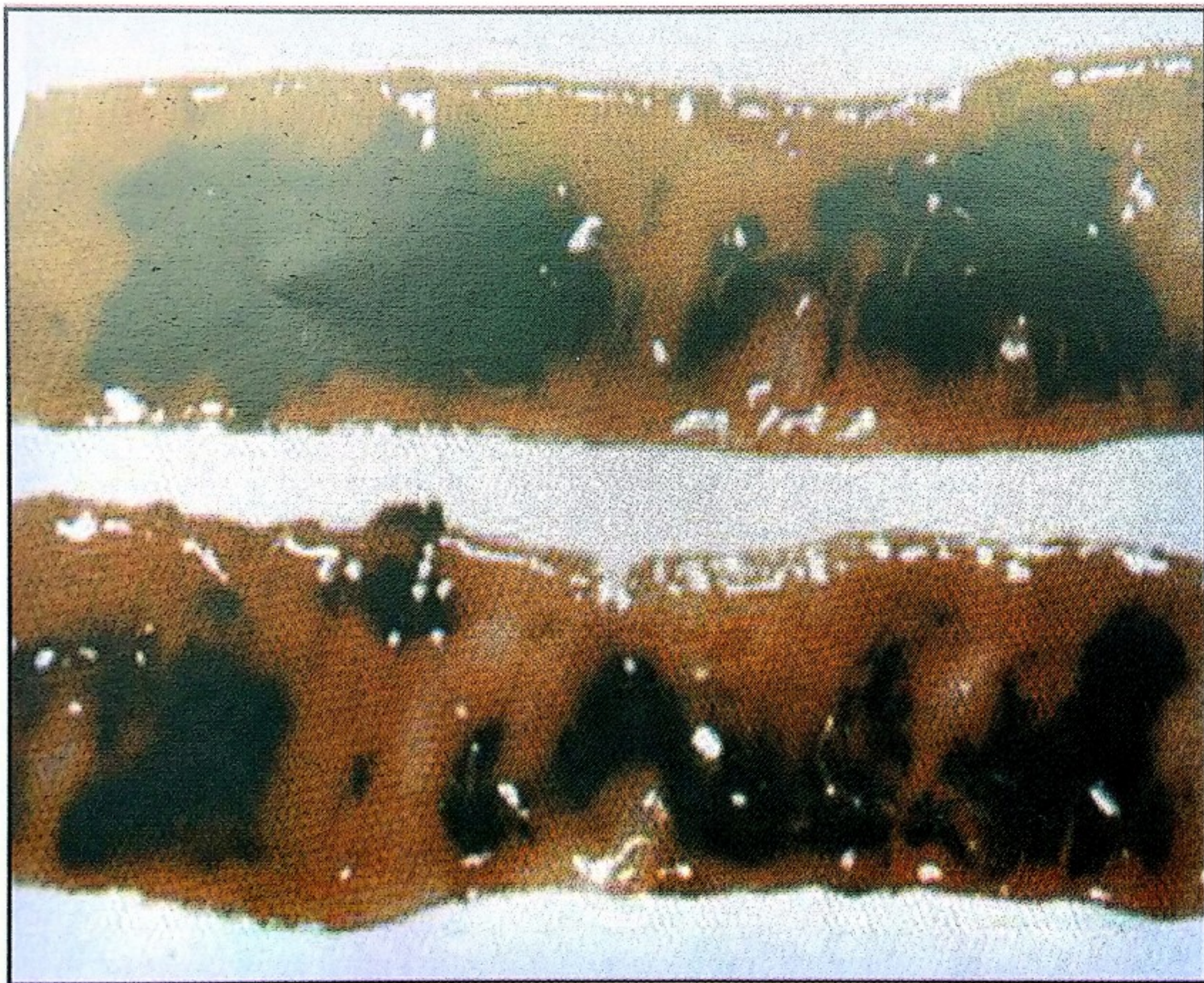
Stain: H&E

Micro: Section through a nodule containing adult worms surrounded with fibrous tissue infiltrated with eosinophils and macrophages. Note muscle cell (arrow), lateral chord cell (Thick arrow) and cuticle



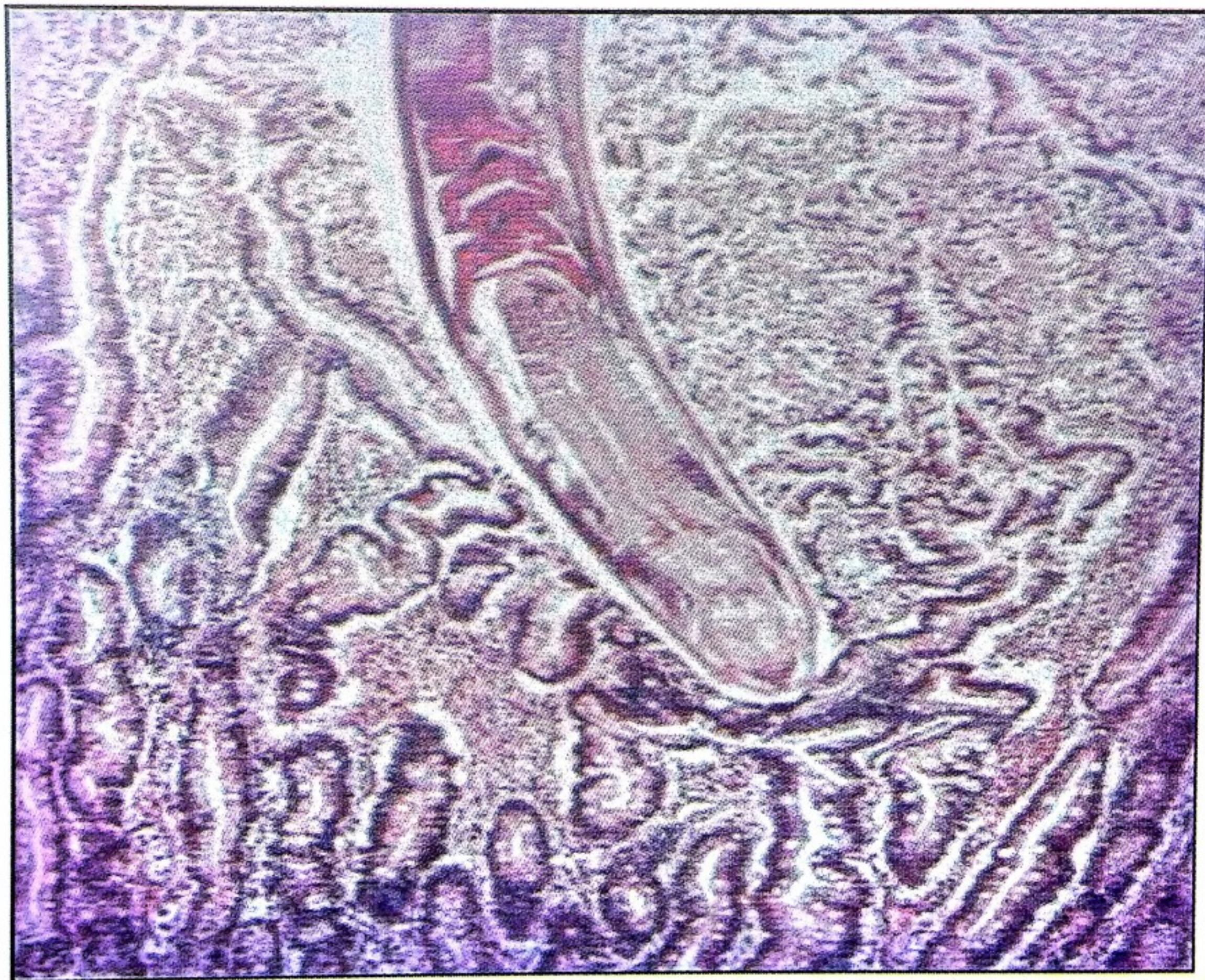
Hookworms infection

- **Organ: Intestine.**
- **Disease: Hookworms infection.**
- **Lesion: Hemorrhagic enteritis.**
- **Macro: severe hemorrhage and congestion of intestinal mucosa due to detachment of hookworm.**



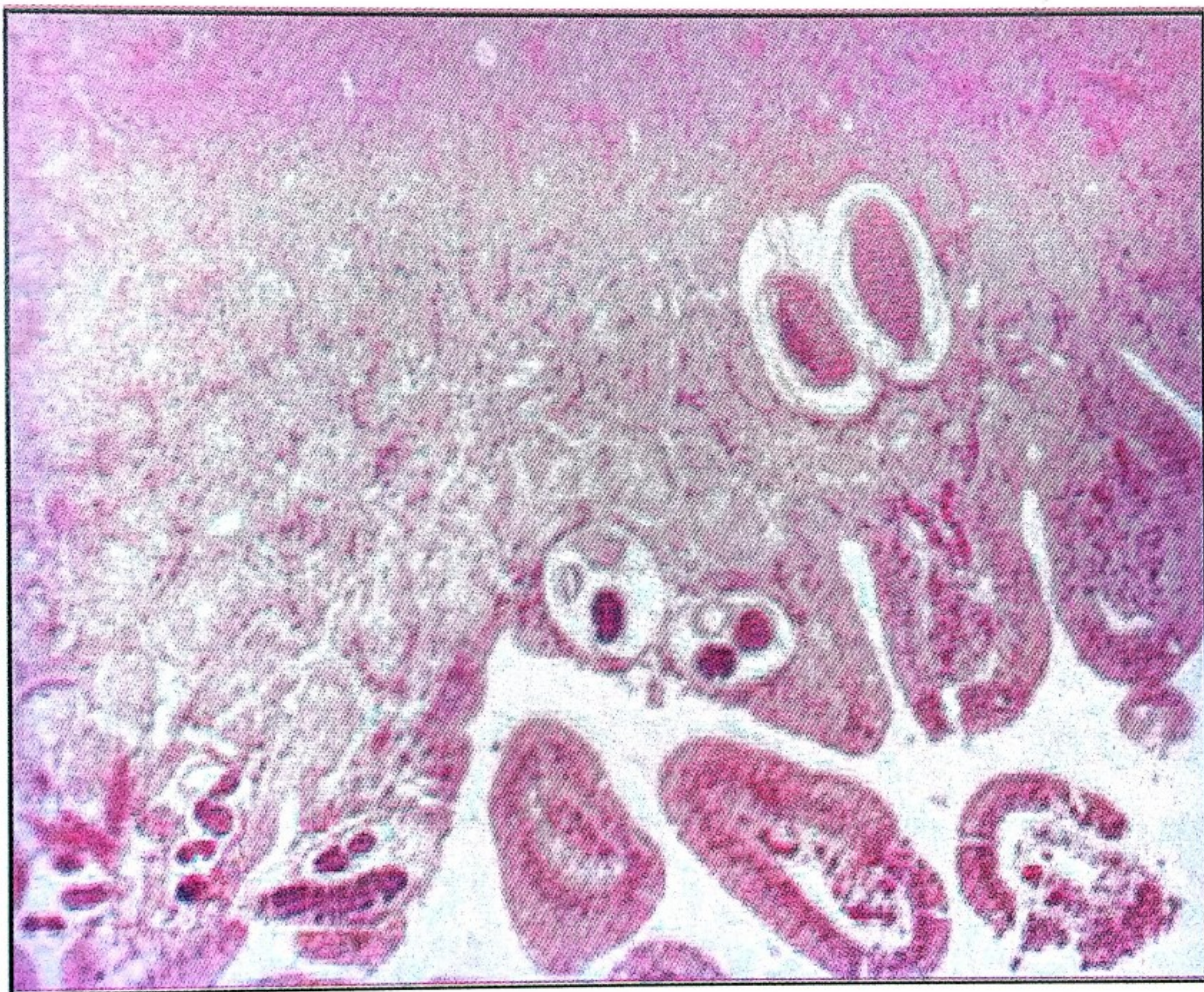
Hookworms infection

- **Organ: intestine**
- **Disease: Hookworm enteritis.**
- **Stain: H&E**
- **Micro: hook worm invade intestinal mucosa.**



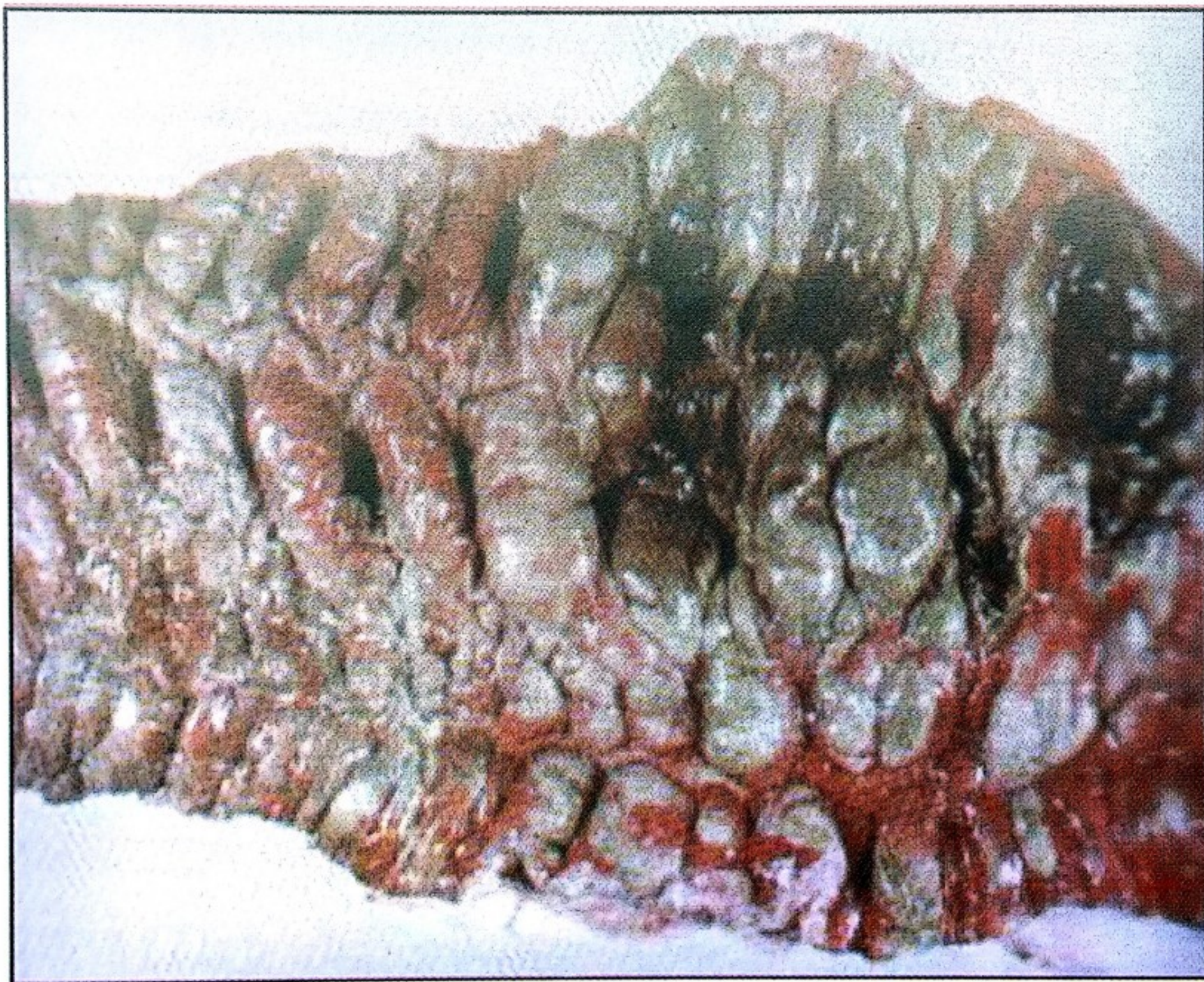
Strongyloidosis

- **Organ: small intestine**
- **Disease: Strongyloidosis.**
- **Stain: H&E**
- **Micro: presence of parasite invading intestinal mucosa and marked chronic inflammatory cells infiltration mainly eosinophils.**



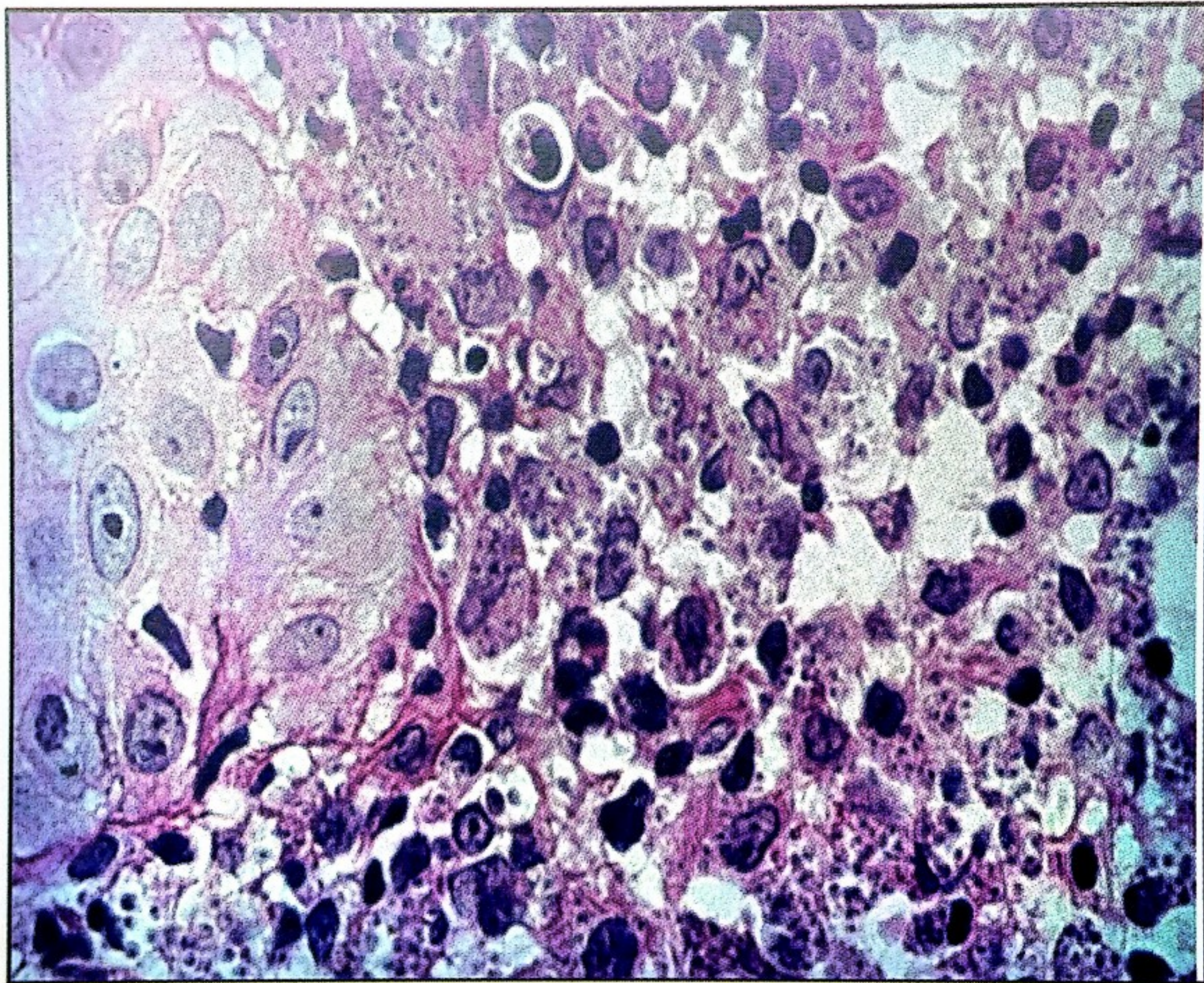
Strongylosis

- **Organ: intestine**
- **Disease: Strongylosis (Verminous arteritis).**
- **Macro: Thromboemboli from sites of verminous arteritis in the cranial mesenteric artery will often lodge in end arteries of segments of the small intestine, resulting in sudden vascular occlusion and bowel infarction.**



Leishmaniasis

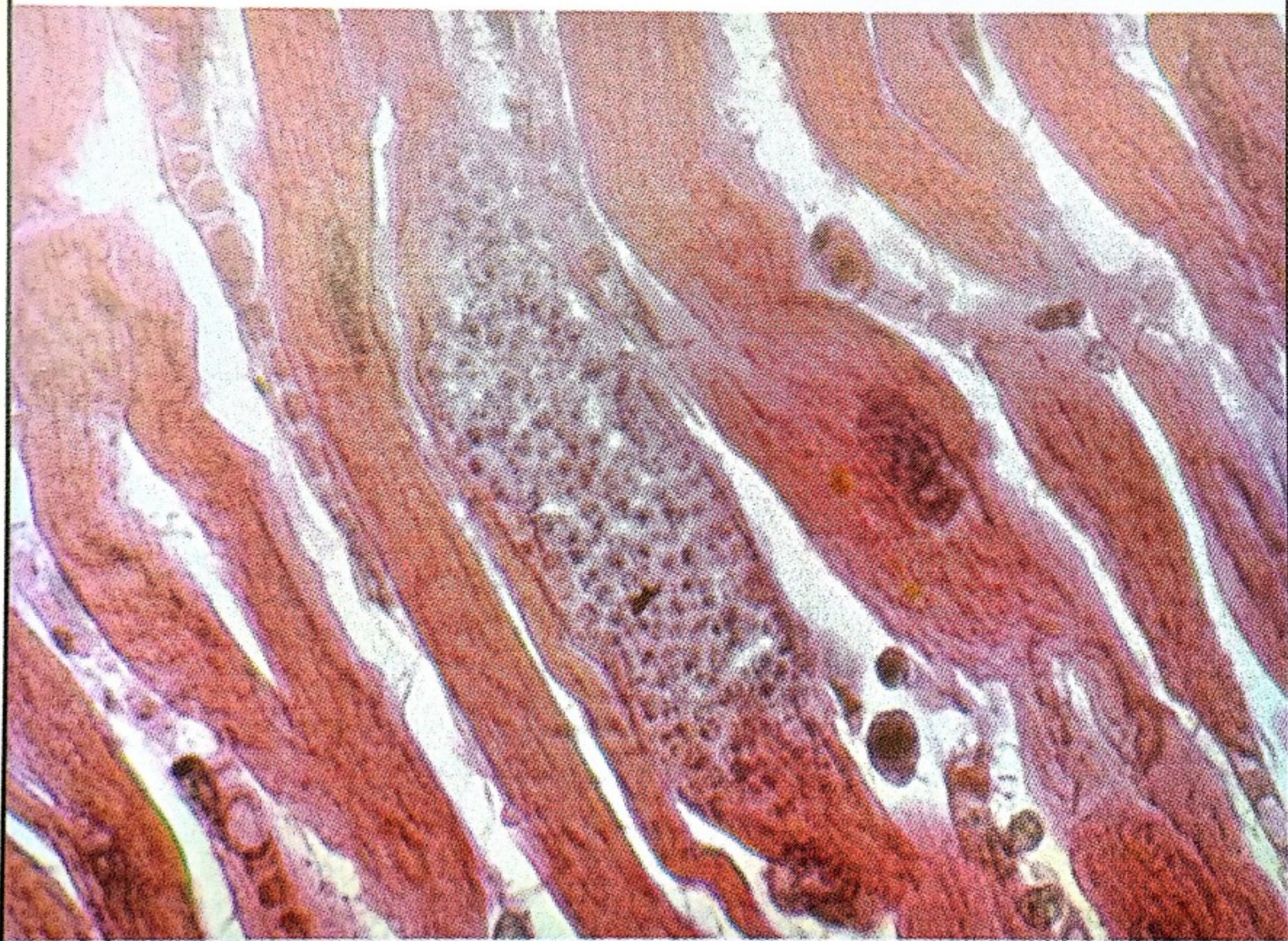
- Organ: Skin
- Stain: H&E
- Disease: Leishmaniasis
- Micro : Numerous amastigotes are phagocytized by macrophages in the dermis



Trypanosomiasis

Chagas disease

- Organ: Heart
- Stain: H&E
- Disease: Trypanosomiasis (Chagas disease)
- Micro: lymphocytic infiltration is diffusely is seen in the edematous interstitium of the heart muscle.
- An infected heart muscle cell is seen in the center.



Demodectic mange

Disease: Demodectic mange

Organ: Skin

**Macro: The dogs showing alopecia and
scaling of epidermis**



✓

Burrowing mites (Sarcoptic mange)

Disease: Burrowing mites (Sarcoptic mange)

Organ: Skin

**Macro: Cattle calf showing alopecia and
epidermal scaling**



Burrowing mites (Sarcoptic mange)

Disease: Burrowing mites (Sarcoptic mange)

Organ: Skin

Stain: H&E

**Micro: Adult parasite is seen in tunnel in
the epidermis**



Cutaneous acariasis

- **Organ : Skin (Rabbit)..**
- **Stain : H & E.**
- **Disease: Cutaneous acariasis**
- **Micro Sarcoptic mange, eggs and larvae are seen in epidermal tunnels with inflammatory reaction of the underlying dermis.**

